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Nature as Sonar Engineer

Donald R. Griffin

Listening in the Dark: The Acoustic Orientation of Bats and Men.

New Haven: Yale University Press, 1958. Pp. xviii + 413. \$7.50.

Reviewed by J. C. R. LICKLIDER

Dr. Licklider is an experimental psychologist who has done most of his research and writing in the fields of hearing and speech communication but who has spent much of his time in exploring such other diverse fields as information processing, data display, manual control, mathematical models of perceptual processes, and the theory of complex systems. He was long associated with Harvard University and the Massachusetts Institute of Technology, and he is now, in association with Bolt, Baranek, and Newman, Inc., in Cambridge, Mass., engaged in developing a working group for the investigation of the psychological engineering problems that arise in the fields of acoustics, solid state physics, communication engineering, control engineering, and other related fields. Licklider has worked in psychoacoustics ever since he joined the Harvard Psycho-Acoustic Laboratory in World War II. Just now he is President of the Acoustical Society of America.

ONE day over 150 years ago, Lazzaro Spallanzani captured 52 bats in the bell tower of the cathedral at Pavia. He marked them, blinded them, and set them free. Early in the morning of the fourth day later, he returned to the tower, found four of the marked and

blinded bats. Their stomachs were full of freshly caught insects.

Donald R. Griffin, Professor of Zoology at Harvard, has written a pleasant and charming book, but a bit of impatience shows through the pleasantness and charm. He is impatient with his fellow men for letting almost a century and a half go by without finding out how those blinded bats caught the insects and found their ways back to the tower. He is impatient with them for not having discovered, even yet, how birds navigate in migrations, how pigeons home, how earthworms (and whether Protozoa) learn. We put so much effort into devising our own solutions to technological problems in navigation and flight control, interception and fire control, electronic data processing and computation by mechanical brains. How little effort we put into understanding nature's beautiful solutions to strikingly similar problems, solutions worked out over 50 million years of experimentation and development!

(Very recent reports, it is true, indicate that a piece of the migration-guidance problem may at last be solved: birds obtain guidance from the pattern of the stars; but how much more remains!)

In *Listening in the Dark*, Griffin recounts the story of the solution of "Spallanzani's bat problem," a solution that is at the same time satisfyingly complete, yet only a beginning. It is complete in showing, through experimental analysis in which Griffin was a pioneer and is still a leader, that bats navigate and intercept insects and even catch fish with the aid of acoustic echolocation. It is only a beginning because each new insight into animal sonar raises further fascinating questions, themselves amenable to experimental investigation. The story is a good one, and Griffin tells it expertly. The book will attract new interest and new talent to the fields the author is sad to see neglected.

THE account is based on the Trumbull Lectures that Griffin presented at Yale in 1955. His audience was exceedingly multidisciplinary, but no more so than Griffin's study of echolocation. In the two-thirds of the book devoted to bats, we find comparative anatomy, descriptive zoology, physiology of metabolism, history of science, physical acoustics, physiological acoustics, electroacoustics, psychoacoustics, behavioral psychology, dynamic psychology, information theory, geography, and speleology. The remaining third, which examines problems of orientation, navigation, and object location in other animals and in artificial devices, adds oceanography, comparative psychology and zoology, and a bit of audio, ultrasonic, and radar engineering. Solving Spallanzani's problem took diligent detective work, and Griffin and his colleagues followed the clues wherever

they led. The trail went through the areas of science aforementioned and also into Panamanian jungles, Cope Cod church steeples, and caves in Venezuela, Mindanao, Ceylon, Negros Island, New York, and New England.

What impressed me and pleases me greatly about the panoramic character of Griffin's work is not so much its never-a-dull-moment quality, but that everything continues to be focused on a problem. Too many of us have become enchanneled within the constraints of a particular field of competence or method of research or laboratory full of specialized apparatus. It is good to sense the freedom of the other kind of scientific life.

FEW readers of Griffin's book will be favored by fortunate coincidence as I was shortly after I read it. I was awakened in the middle of the night to hear a soft, fluttering movement in the bedroom. Turning on the light, I saw what I had just learned to distinguish as one of the Vespertilionidae. I got up, closed the door, and watched it for several minutes as it explored the room, flying into corners and even closets without more than lightly brushing a wall. I tried blocking its path with a shirt, but the bat avoided the obstacle. When it tired, it headed for a dresser, pulled up just in time to avert a crash, came just to the point of stall, and hooked itself by its thumbs onto the crack at the top of a closed drawer.

The bat's thumbs project from the leading edges of its wings, the other fingers being incorporated into the wing structure as ribs. Somehow the little *Myotis lucifugus* managed to get its thumbs into the crack while it was folding its wings and turning upside down. There it was, dangling head-down from the crevice in the front of the dresser.

Griffin's discussion of the depth psychology of our reaction to bats challenged me to adopt a rational approach to the little creature so maligned by accusations of association with the Forces of Darkness. I therefore blamed my anxiety on my newly-won knowledge that someone once died of rabies from a bat bite. Using the shirt as both net and protector, I picked up the little bat

and was at once treated to a display of the audible cries described in the chapter on *The Voices of Bats*. I examined my captive, looked again at its needle-like teeth, made sure that it had *lucifugus*-sized ears and no ultrasonic reflector on its nose, and appreciated in real life the wing structure at which I had marveled in the chapter on *The Nature of Bats*. Then I turned it loose.

I listened for the *Ticklaute*—the faintly audible correlates of the ultrasonic navigation pulses—but could never be sure. Griffin had missed them in his own early observations, so I counted myself in good company.

Next I set up an experiment. The standard obstacles in bat experiments are wires or rods, usually arranged in a vertical grid across the middle of a long room. At 4:00 AM, with no wire and a sudden humane impulse, I deviated from tradition. I opened a window screen about a foot to produce an aperture through which my subject, under the incentive of escape, would surely navigate. To my surprise, the bat circled the room for half an hour (not counting six or eight brief pauses for rest) without finding the opening.

Bats may be better at avoiding collision with isolated reflectors than they are at flying through holes in reflection patterns.

The next day, I read parts of *Listening in the Dark* again and correlated as much as I could with observations on my new pet. Since the observations support the book on every count, I refer you to that prior source. My final observation was a repetition of the open-window test. The bat did not 'navigate' through the opening. It landed upon the window sill apparently by accident, rested a while, and crawled around aimlessly. Suddenly it found itself without an echo. Immediately there was a rapid flutter of wings, and my observations were ended. My empathetic sense of freedom was somehow related to the freedom from constraint I like in Griffin's pursuit of understanding.

ACOUSTIC echolocation involves both production and perception of sound. The source sends out a space-time pattern of sound. Some of the acoustic energy is reflected by each irradiated object. From the echo pattern the re-



DONALD R. GRIFFIN

Photo by Ollie Atkins, reprinted by courtesy of *The Saturday Evening Post*, copyright 1955, by Curtis Publishing Company.

ceiver deduces the kinematic geometry of its environment.

To convert the general formula into an effective system requires a multitude of decisions by the system designer. Each decision must be coordinated with many others. Some of the requirements for coordination are these. The perceiver must discriminate acutely in the frequency band in which the source emits. The emitted signal must be strong to produce useful echoes (some of which will be faint in any event because of the smallness or remoteness of the reflectors), but the returning echoes must not be masked by the outgoing signal. The echoes must not be masked, either, by neighbors' emissions or confused with neighbors' echoes. The acoustic beam must cover a wide enough angle to avoid 'tunnel perception,' yet the system must achieve high resolution. And the whole apparatus must be light, compact, and manufacturable from available materials.

In Griffin's pages describing the echolocation techniques of bats, one sees nature as the outstanding systems engineer. Bats display most of the effective solutions familiar to the technologist of sonar and radar: pulsed carrier transmission, frequency modulation within the pulse, velocity sensing with the aid of doppler shift, variable pulse repetition frequency, variable duty factor, frequency diversity, directional antennas, split-beam discrimination of direction, and more. Their echolocation systems incorporate, also, ideas that engineers have thought of but, I think, not yet reduced to hardware: variation within the pulse of the directivity of the transmitting antenna, contingent programming of the orientation of the receiving antennas, underwater sonic detection with airborne projectors and receivers. There are, moreover, hints that bats have for centuries used principles that men are just beginning to comprehend: it seems just possible, for example, that the successive pulses emitted by a bat have individually characteristic patterns, and that the bat may understand the significance of each possible reflective alteration of each emitted pattern. In any event, bats appear to have a kill probability of approximately 0.5 against assorted insects,

Basis of comparison	Effectiveness of bat's echolocation relative to that of the man-made device		
	Radar SCR-268	Radar AN/AP-10	Sonar QCS/T
(1) $\frac{R}{W \times P \times D}$	3.0×10^{11}	1.5×10^{11}	1.0×10^{12}
(2) $\frac{R^4}{P \times D^2}$	5.9×10^{-8}	3.5×10^{-8}	6.1
(3) $\frac{P}{W}$	$1.3 \cdot 10^{-4}$	$7.5 \cdot 10^{-6}$	$6.2 \cdot 10^{-4}$

even in the face of ground clutter and of counter measures by the intended victims.

The budget of the whole of the study of nature's sonar has been less than the cost of a single man-made installation. Griffin appears to think we might have developed sonar and radar long before we did if we had studied nature's handiwork more energetically. An engineer might argue that it is no more difficult to invent a system than it is to figure out a solution to one of nature's mysteries. (H. S. Maxim, who first hit upon what turned out to be the correct solution to the problem of bat navigation, had just invented a sonic depth finder based on the same principle.) However, when one familiar with weights and sizes of electronic equipment considers that the bat's equipment lives in a 6-gram package that can roost in a 3-inch crack—that includes the whole bat—he is likely to conclude that there is something there worth learning.

THE comparison of bats' performances with the performance of man-made echolocation systems brings me to my one criticism of Griffin's exposition. While I was reading the parts of the book that discuss the detection of signals in noise, I found myself looking for more than was there.

I was quite happy about Griffin's suggestion that bats may be using coherence and correlation techniques. I was puzzled by the suggestion that the frequency modulation of the navigation pulses added a theoretical advantage, an orderliness on the basis of which detection performance might be improved.

(Improved, I wondered, over the detection of an unmodulated pulse of known frequency, which is the acme of orderliness?) But I was unhappy when I did not find any true, technical evaluation of the bats' performance. How closely do bats approach the mathematically ideal performance of a hypothetical maximum-likelihood observer? Radar and sonar engineers continually measure their systems against criteria. If the bat is to be compared with radar and sonar, why not so measure the performance of the bat?

When A. W. Melton called my attention to a more quantitative evaluation in Griffin's article, covering some of the material of the book, in the *Scientific American* (July 1958, 199, 40-44), I read it eagerly. The article is more explicit than the book about the relative excellences of the performances of bats and man-made echolocators, but it does not make any absolute evaluations. Griffin defines an echolocation "figure of merit," the range R of the detected target divided by the product of the weight W and (peak) power P of the system and the diameter D of the target. On that basis of comparison, Griffin finds the bat *Eptesicus* to be superior to two radars and a sonar by the factors shown in the first line of the table.

I question the reasonableness of Griffin's figure of merit. If we have two radars of identical design, except that one is 16 times as powerful as the other, the detection range of the second for a specified target will be 2 (not 16) times as great as the detection range of the first. The inverse-square law enters twice, once on the way to the target

and once on the way back. If we have one radar and two targets, the diameter of the second target being twice that of the first (and the cross-sectional area 4 times as great), we will get back 4 (not 2) times as much echo power from the second target as from the first. Therefore, if we hold constant the ratio of peak power to average power (along with other unspecified factors in the situation), a fair index of performance is the formula given in the second line of the table. On the basis of Griffin's data, the two radar sets turn out to be very much better detectors than the bat, but the bat has an edge over the sonar.

But row 2 says nothing about efficiency of packaging. It seems to me that we should reason as follows. If we want long-range detection, we have to use high power. If we want the echolocator to fly, we should try to achieve a high ratio of power to weight. That ratio is used as a basis of comparison in the third line of the table. On the basis of Griffin's data, even the ground-based radar and the shipborne sonar have more watts per kilogram than the bat, and the airborne radar is far superior. I think Griffin was so relaxed about the outcome of the comparison that he indulged himself in conservatism by using the weight of the whole bat. Perhaps I should return the kindness and enter a generous factor of 10^3 to remove the non-echolocative parts of *Eptesicus*. The airborne radar still leads by over 100 to 1.

The comparisons just presented leave many factors out of the picture. Other factors that enter the determination of effectiveness of detection include the a priori probability that a target is present, the acceptable false-alarm probability, the duty factor (which converts the peak power to average power), and the time available for an observation (which depends upon rates of movement, a priori knowledge of possible target courses, etc.). A discussion of these things would tend to be rather technical, and perhaps difficult for an unspecialized audience, but an accurate treatment of them seems to me to be essential as support for Griffin's plea that we try to learn from nature about signal detection. About packaging and

reliability, no question. About signal detection, I'd like better evidence that nature has something to teach.

This one criticism is enough of criticism. There must be some in a critical review, even though the reviewer has to go beyond the book to find an object, but, in a review of Griffin's book, praise must predominate.

I have said that Griffin's book is pleasant and charming, interesting and

educational, broad in scope, full of diverse observations all relevant to a fascinating problem. It is also scholarly. This is not merely an account of Griffin's own work (though that would have been enough to convey the story), but a scholarly synthesis of research in Europe and the United States and of field observations all around the globe. There are 467 references. I think I shall read some of them.

The Administrative Statesman

Philip Selznick

Leadership in Administration: A Sociological Interpretation. Evanston, Ill.: Row, Peterson, 1957. Pp. xii + 162. \$4.00.

Reviewed by ROBERT L. KAHN

Dr. Kahn has been director of the field staff of the Bureau of the Census, and in that mammoth organization with its huge staff of interviewers he developed "an intense and necessary interest" in the role of leadership in administration, an interest which he took with him to Michigan's Survey Research Center, where he has worked since 1952 as program director of the Likert-and-Katz-generated study of why people behave as they do in organizational settings. He is also Associate Professor of Psychology at the University of Michigan.

THE central idea of *Leadership in Administration* is that administrative procedures, human relations, public relations, and all the other gadgetry of management in our time are not enough. Professor Selznick feels that many of the men who occupy the top echelons of industry cannot properly be considered managers or leaders. They may be administrators or efficiency experts or lubricators of human relations, but no more. They attend to the very partial indexes of efficiency which have come to be associated with a professionalized management; but their concern about the road speed, friction, temperature, and oil pressure of the enterprise's vehicle is a poor substitute for their lack of concern about whither the machinery

is taking them, and whether the destination and the route are still appropriate.

Dr. Selznick is a serious and successful student of large-scale organizations—those complex social inventions which have done so much to shape and reshape our lives. He brings to the study of organizational problems an unusual breadth of background. His initial training as a sociologist at Columbia (PhD in 1947) was supplemented by a senior fellowship at the University of Chicago's Law School, where he concentrated on the sociology of law, the study of job rights, and due process in modern industry. His publications in the field of organization include *The TVA and Grass Roots* and *The Organizational Weapon*. Recently he has collaborated in the preparation of an undergraduate text in sociology. He is now Professor of Sociology at the University of California at Berkeley.

Professor Selznick's major thesis is sound and well argued. I do not think it is new to organizational research or to social psychology. For its impact on business men we have Clarence B. Randall's assertion in the foreword that "this book will broaden their intellectual horizon."

Now let us look more closely at the book's contents and at their significance for psychologists. Dr. Selznick tells us

in his preface that "this essay outlines a perspective for the study of leadership in administrative organizations," and that "it was written in the conviction that more reflective, theoretical discussion is needed to guide the gathering of facts and the diagnosis of troubles." As a student of organization, I could not agree more with the urgent need for such discussion. *Leadership in Administration* does, indeed, contribute in some degree to satisfying this need. It is reflective and it is studded with researchable hypotheses. In this sense it is theoretical, although it is not theoretical in the more formal sense of the word. We do not encounter a set of precisely defined concepts, nor a full statement of postulates and hypotheses. Nevertheless the main lines of thought are clear enough.

WE begin with the assumption that the appropriate criteria of effectiveness are different for different echelons of an organization. At the lower levels, where the goals are typically handed down and the methods for their attainment specified by staff experts, the "logic of efficiency" is applicable. At these levels it is appropriate to measure effectiveness in terms of the number of units produced with a given number of man hours and a given amount of material. This statement seems generally accurate as a description of most industry, although it tends to deprecate the creative contribution made at modest organizational levels, in spite of conditions that tend to discourage originality from all except the professional originators.

Dr. Selznick tells us, however, that the logic of efficiency loses force as we ascend in the organization. At the top the appropriate criteria change: the leader is effective to the degree that he comprehends the organization as a whole and the context in which it exists. His ability to sense and to adapt to changes in the context—a developing consumer preference, a new legislative act, or a technological development, for example—is much more important than his ability to operate efficiently in time-study terms. Again, one can only agree. Certainly the skills and capacities which we

demand of leaders differ according to the place and function of the leader in the organization.

The author emphasizes this general point of view by the use of a terminology which, while it falls strangely on the ears of psychologists, is employed consistently and to good purpose. When the executive has comprehended the new logic which is appropriate to his position, he becomes a statesman. His functions in the organization cease to be administrative management, and become institutional leadership. His organization, moreover, ceases to be merely a "lean, no-nonsense system" and becomes an institution—that is to say, it is a "natural product of social needs and pressures—a responsive, adaptive organism." Selznick is fond of these dichotomies. He is not misled, however, into confusing his ideal types with the complex forms encountered among ongoing organizations, and he warns his reader repeatedly against making such errors. In the same paragraph in which he proposes categorization into organizations and institutions, he tells us that, "while an extreme case may closely approach either an 'ideal' organization or an 'ideal' institution, most living associations resist so easy a classification. They are complex mixtures of both designed and responsive behavior."

I HAVE said that the book offers a number of researchable hypotheses. These are sometimes stated as such, but more often they are presented as conclusions, with anecdotal or case-study material offered in evidence. For example, there is the hypothesized relationship between stages of organizational growth and personnel changes. The presumption is that, as an organization moves through several rather well-defined stages of growth, it encounters changed external requirements. The effort to meet these with appropriate internal changes is likely to require a major turnover of leadership, in order to get rid of people who symbolize the old order and are incapable of adapting to new ideas and requirements. The history of the Ford Motor Company during the long era of the first Henry, and the shorter history of the United Auto Workers are well told in support of this thesis.

Another of Selznick's major hypotheses deals with the much-debated issue of centralization and decentralization. He uses the case of General Motors to document the interesting notion that any re-orientation in organizational goals is likely to require a period of centralization, but that this same period creates the conditions for successful decentralization, primarily by training a group of executives who have internalized the new ways of doing things and who will continue—independently, as it were—to make decisions as the headquarters group would want them made.

TO SUM UP, Professor Selznick does a good job of making available to businessmen some of the organizational wisdom which has been accumulating through social research. For the researcher, the book offers a summary of many things which he knows, as well as a number of stimulating and broadly testable propositions about organizations. I suppose it is less than surprising that a psychologist, reading a sociological work, should feel that his own discipline is being either criticized unduly or ignored undeservedly. If so, I succumbed to the inevitable from time to time as I read *Leadership in Administration*. The description of organizations as open systems, the interaction between means and ends, the process of internalization of organizational goals by key people—all were familiar through lines of research which received only scant recognition. Dr. Selznick, I think, tends to treat social psychology merely as part of the armamentarium of management. As he puts it at one point, "problems of misunderstanding and false perception, insofar as they spring from interpersonal relations, may be dealt with by management engineers who have learned their social psychology. Such problems arise continuously in any organization, and do not necessarily require the attention of leadership." All in all, I welcome this book and commend Dr. Selznick for writing it. I hope that others who are studying organizations will follow his injunction to write reflectively and theoretically, for the guidance of research and the deeper understanding of organizational life.

Talking Properly about Perceiving

Roderick M. Chisholm

Perceiving: A Philosophical Study.

Ithaca: Cornell University Press,
1957. Pp. xi + 203. \$2.75.

Reviewed by LEWIS E. HAHN

who is Professor of Philosophy and Chairman of the Department of Philosophy at Washington University in St. Louis. He has long been interested in this problem for he has written *A Contextualistic Theory of Perception* (Univ. Calif. Publ. Philos., 1942, vol. 22), *Neutral, Indubitable Sense-Data as the Starting Point for Theories of Perception* (J. Philos., 1939, 36, 589-600), and *Psychological Data and Philosophical Theory of Perception* (J. Philos., 1942, 39, 296-301).

TRADITIONALLY the problems of perception have been formulated in terms of a metaphysical theory which set up, on the one hand, an external world of real things in a spatio-temporal field of location and, on the other, an 'inner' domain of mind or consciousness which contains the rest of the world. Within this second realm, according to this view, fall the data of perception or what is 'given' in perception. The chief problem is that of passing beyond the 'inner' data—the 'appearances' or 'sensations'—to the 'external' physical world, making sure that the inner subjective data correspond to the real external things.

Professor Chisholm, who studied at Brown and Harvard with such philosophers as Ducasse, Williams, and Lewis, and who has been since 1951 Chairman of the Philosophy Department at Brown University, also deals with this problem (pp. 74f.) and various other philosophical puzzles which seem to me to stem from this world view, but he demurs at accepting some of its suppositions (p. 75) and discusses problems of perception without introducing such terms as *the given*, *immediate awareness*, *direct*

experience, or *acquaintance*. He is primarily concerned not with showing the place of perception within the conceptual framework of this or any other philosophical system but rather largely with properly minding our language in talking about perception—how to talk about perceiving in ways adequate to what we know or want to say about it, showing that these special ways of speaking do not give rise to the traditional puzzles, and pointing out how the latter arise from inconsistencies and ambiguities in our more usual ways of speaking.

For example, he prefers saying "I sense painfully" to saying "I have a pain" or "I experience a pain," for the first locution avoids some puzzles about 'other minds,' such as whether another person can experience *my* pains. Similarly "S senses red with respect to x" is preferable to "S senses a red appearance of x," for the latter wording suggests that appearances are special objects and raises questions about their relations to the surfaces of physical things. The author also notes that we are committing the sense-datum fallacy if, from "He sees a boat," we infer "He sees an appearance." Chisholm's critiques of older usages are penetrating, his proposed ways of talking have much to recommend them, and he does indeed avoid many traditional difficulties.

MUCH of the difficulty in talking properly about perceiving arises from the fact that "if we are to express all we know about perceiving, we must give certain words a use which no words need to have when we are merely expressing the conclusions of physics and the natural sciences" and "most of the philosophical questions about perceiving are usually formulated in these 'non-physicalistic' words and locutions" (p. vi). Hence Professor Chisholm tries to use as few of these locutions as possible. As a minimum, however, he holds that adequate discussion of perceiving requires three 'nonphysicalistic' types of expression (and adequate discussion of psychology still more): (1) *epistemic* (distinctively cognitive) locutions to enable us to say what we often say using such words as *know*, *evident*, *perceive*,

unreasonable, and *see*; (2) a locution corresponding to a noncomparative use of the word *appear*; and (3) an *intentional* term like *believe* or *assume*.

IN his discussion of what he calls the ethics of belief, Professor Chisholm proposes definitions of some basic epistemic terms, using an undefined epistemic locution which permits him to say that some propositions are more acceptable or worthy of belief than others, and then goes on to discuss, with illuminating parallels from moral philosophy, problems connected with finding criteria for applying "adequate evidence" and other epistemic terms. For example, he defines at the outset the locution "S perceives something to have such and such a characteristic" as follows: "There is something that S *perceives* to be f' means: there is an x which is f and which appears in some way to S; S takes x to be f; and S has adequate evidence for the proposition that x is f" (p. 3) and proceeds to an explanation of the key terms. He notes significant similarities between cognitive appraisals such as "We do not have adequate evidence for believing that acquired characteristics are inherited" and moral appraisals like "Stealing is wicked" or "We ought to forgive our enemies," none of which as an appraisal seems to him either true or false. In discussing evidence or knowledge he tries to describe the conditions for adequate evidence without using epistemic terms, and as he uses terms it is possible for him to maintain that "if a man *thinks he perceives* a thing to have certain sensible characteristics, he thereby has adequate evidence for believing that the thing has those characteristics" (p. 90).

Particularly interesting in his account of the objects of perception is his treatment of secondary qualities, sensing or being-appeared-to, and the propositional and nonpropositional senses of perceiving. His definitions of the latter have the virtue of avoiding the thesis that what people perceive are light waves, retinal images, parts of the brain, or ways of appearing. His book affords a fresh, interesting analysis of perceiving which both philosophers and psychologists may read with profit.

Middle Ground on Child Development

David P. Ausubel

Theory and Problems of Child Development. New York: Grune & Stratton, 1958. Pp. xiv + 650. \$12.00.

Reviewed by ROGER G. BARKER

Dr. Barker is Professor of Psychology at the University of Kansas and has for a long time interested himself in the behavior of children and its development. His friends regard him as a pessimist because he sighs so deeply over the plethora of words and *ipse dixit*s, divorced from fact and observation, which fill the writings in his special field. He himself has recently been after facts, examining child behavior in Leyburn, Yorkshire, and in Oskaloosa, Kansas, in order to compare the behavior systems of the British and American child. He has been editor of *Child Behavior and Development* (McGraw-Hill, 1943) and author of *One Boy's Day* (Harper, 1951) and *Midwest and Its Children* (Row, Peterson, 1955).

IN this volume Dr. Ausubel has undertaken a difficult task, namely, an advanced, comprehensive, theoretical treatment of the multitudinous facts about the development of behavior in *homo sapiens*. He has written for graduate students, research workers, and college teachers. Almost every one of those for whom the book is intended must have wished for precisely this kind of book. Unfortunately, however—so it seems to me—the goal of this effort is beyond the reach of Dr. Ausubel or of any one else at the present time. The crucial difficulty is that the requirements of adequate scientific theory cannot now be met in this corner of psychology.

The prospective users of the book are highly conscious of the requirements of adequate scientific theory. They know, and Dr. Ausubel knows, about the

virtues of the hypothetico-deductive method, the necessity of operationism, the sin of speculation, the evils of *a priori* principles, and the indispensability of conceptual rigor; yet sophistication regarding theory cannot save any of us from primitive thinking about the development of children, now or in the immediate future. When any problem is on the frontier of knowledge, thinking about it is bound to be primitive. That is true whether the thinker be a four-year-old child or an adult genius. Aristotle proposed some inadequate theories of biological reproduction; and he did it, in some degree, for the same reasons that young children today have primitive notions about reproduction; his cognitive world, like theirs, did not and could not include the facts of micro-organisms and the principles of meiosis. At the frontiers of knowledge where so much research functions, the cognitive field is, *ipso facto*, restricted. For this reason intellectual discovery must be cast in different and, in a way, in more primitive modes of thought than intellectual verification which has received so much attention from philosophers and theoreticians of science. On the scientific front lines, we have to solve problems before we are able to do so. That is what makes science so difficult, and so different from the picture painted by those who do not participate in it themselves but study its final written products. Most problems of child development are on the scientific frontier at the present time and cannot be dealt with in theoretically sophisticated ways.

Under these circumstances, what can



DAVID P. AUSUBEL
Ohope Beach, New Zealand

a book on child development theory provide for those to whom it is addressed and how does the present book measure up to these possibilities? The undertaking, despite its inherent difficulties, doubtless offers an opportunity for producing a good and useful book.

Dr. Ausubel is Professor of Educational Psychology at the University of Illinois, and is on the staff of the Bureau of Educational Research. He is a psychologist and a psychiatrist.

THE book might, I should think, justifiably be expected to present a complete exhibit of the crucial issues in the field. Primitive theorizing is no handicap here. On the frontier, primitive or even false theories can effectively draw attention to a good problem. Children provide psychology with its most versatile subjects and most varied problems. This book, however, covers only a part—an important part—of child psychology. Being similar in important respects to rats and college students, children are suitable subjects for the investigation of general psychological problems. Being different in other respects from these and other laboratory standbys, they are crucial subjects for problems of comparative psychology. But in one respect they are unique: over the years, children become human adults (the crowning glory of our science), while rats never cease

to be rats, and college students are so close to adults it is often difficult to see any difference; perhaps they even are adults. In any case here is a special value of children for psychology, for only in them can this all-important transformation be effectively studied. *Theory and Problems of Child Development* is addressed exclusively to this problem.

Within this area, the book covers a lot of ground. We find a brief history of points of view regarding development, a survey of methods of investigating the development of behavior, a review of evidence concerning the genetic and environmental regulation of development, a description of the course of development in the prenatal and neonatal periods, a description of development at later ages, with special reference to intelligence, perception, cognition, language, physique, motor abilities, values, emotion, and the ego, and a consideration of special influences on development originating with peers, parents, and the larger culture. *Theory and Problems of Child Development* is comprehensive in its coverage of problems, data, and contributors. Over four hundred different persons are cited in the index. Those most frequently mentioned are indicative of the book's emphasis; the top fifteen, with number of citations, are: Arnold Gesell (24), Wayne Dennis (15), A. T. Jersild (15), Jean Piaget (12), Margaret Mead (11), M. B. McGraw (11), L. B. Ames (10), Nancy Bayley (10), I. L. Child (10), Sigmund Freud (10), R. J. Havighurt (10), Mary Shirley (10), A. L. Baldwin (9), Clyde Kluckhohn (9), H. M. Schiff (9). A few well-known contributors to our knowledge of child development are, surprisingly, missing: Alfred Binet, Susan Isaacs, Kurt Koffka, William Stern, H. R. Stolz are some which occur to the reviewer. Nonetheless, comprehensiveness is one of the virtues of *Theory and Problems of Child Development*.

READERS of this book might also, I believe, rightly expect to find a selective, evaluative survey in which important and promising problems are set apart from currently unimportant and

futile ones. Hopefulness and excitement about new discoveries and promising possibilities are not amiss in a new country. Here the book is less successful. The shortcoming is partly a matter of its organization and exposition. One has to dig into long and loosely organized chapters, sections, and sentences to find the important and promising issues. There is little excitement. It is characteristic that the book eschews figures and tables as "serving more to simulate an atmosphere of scientific precision than to facilitate genuine conceptual understanding." It is probably true that a long essay is more befitting the *Zeitgeist* of child development than formulae and diagrams (though not tables); but it is unfortunate that the author did not take the lead here and help to rescue child development from its own unaccented sweep of words and numbers. In Floyd Allport's language, child development is presented here as largely *ongoings* with few *events*; its structure is, unfortunately, faint in this picture. And this absence of accent seems to me to be the greatest expository weakness of the book. The front lines of science are not smooth, and a book about them should clearly represent, again in Allport's terms, their encounters and junction points.

At this stage in the game, one might expect to be confronted at every point in this book with empirical reality—as it is known today. Herein lies the great opportunity of preliminary theories and generalizations. Their close connection with relevant facts provides the eventual sources for correcting or repudiating them. The volume has its good and its bad features in this respect. It is empirically oriented. Statements are generously documented with references to literature. The data themselves, however, are not usually reported, or only in very abbreviated form, and there is little reference to *critical* data. Thus we read: "Six main categories of distinct and stable individual differences have been identified in infants during the early months of life. These may be grouped as follows: (a) placidity and irritability^{27, 28, 30}; (b) activity level and distribution of activity^{27, 28, 33, 30}; (c) tone, length and vigorousness of crying^{30, 41, 30}; (d) tolerance of frustra-

tion or discomfort and reaction to stress situations and over-stimulation^{27, 28, 30, 33, 39, 41, 30}; . . ." (pp. 112f). The serious student will have to do much library work to discover if Ausubel's interpretations are justified. It may be asking too much of a present-day surveyor, but we can hope for the day when we can get the facts without taking them in ungraded wholesale lots.

Finally, those to whom this book is addressed might expect to find not theory in the technical sense, but principles, generalizations, suggestions, hunches, questions, and problems to stimulate and free them rather than to inhibit and restrict them. *Theory and Problems of Child Development* is full of generalizations which lie close to data; they are Dr. Ausubel's interpretations and extrapolations of particular research findings; e.g., "both poor and wealthy children tend to identify with the middle class; the poor overrate their parents' financial status and the rich underrate it;^{31, 27} "mesomorphic (muscular) boys enjoy the reputation among their fellows of being 'real boys,' daring, leaders, good at games, and grown-up, whereas ectomorphic boys have the reputation of being bashful, submissive and unhappy."³⁸ The explanations of these 'empirical laws' are usually in terms of very fragmented theories which are almost as close to the data as the generalizations themselves. There are practically no conceptually vigorous hypotheses backed by a well-developed theoretical structure and issuing in testable predictions. Nevertheless this dearth should not be discouraging, for it is just inevitable. The book gives a true picture of the sciences which cross at the point called *child development*. It is my guess that the theories and generalizations which Dr. Ausubel endorses come as close to the median of current academic points of view regarding child development as one is likely to find today, we have here an authentic, contemporary picture.

The book would be better didactically if it made clear that the current state of child development displayed is undoubtedly temporary. It should be possible to provide insight into the present undeveloped state of child development theory and problems without condemn-

ing it and invoking impossible standards. There is an important difference between a book which provides this awareness and one, such as this, which marks out a good, sane middle road among the possible theories, concepts and methods of child development, but does little to locate this road with respect to other possible and eventually better ones.

IN general, *Theory and Problems of Child Development* has the virtues and limitations of an excellent guide's commentary during a swift tour of a region rich in major and minor landmarks. We learn a lot, we feel that we have

been on quite a trip, and we do not get lost. Yet we do not have our bearings. This characteristic of the book has presented the reviewer with difficulties. A commentary on a commentary is likely to be as thin as the mullah's soup of the soup of the bones of the rabbit four days after the feast.

With this guidebook in hand, and a reference library close by, or even a single fact book like Carmichael's *Manual of Child Psychology*, the amateur explorer will be able to find his way about in this frontier region. It is unfortunate that Ausubel's book is so expensive a guide; even in 1958, \$12.00 is a lot of money to pay for such a rapid conducted tour.

In the present edition special emphasis is given to feedback, to the central modulation of sensory perception, and to the way these new conceptions have changed our understanding of reflexes and what the author well calls the "physiology of perception." Neurochemistry is given an important place in the volume because, in the author's view, this subject is now revolutionizing neuropathology. Special notice is also given in this edition to MacLean's work on the visceral brain or limbic system and to the investigations of Magoun and others on the reticular formation.

FUNDAMENTALLY, the book is written to provide practitioners and students of medicine with the facts and correlations needed to understand what the author calls "the simpler workings of the central nervous system." He adds, however, "In truth little more than these simple mechanisms is thoroughly understood, and even some of these are still controversial."

He points out that in his opinion many sciences can be schematized as pyramids. The apex of each is philosophy and the base is made up of the more exact sciences in which measurable data are used. The pyramid making up psychiatry is illustrated in the accompanying figure. In this diagram of psychiatry "the mental sciences lie above the void, indicating that they are as yet only feebly supported by the fundamental sciences." It is in this void that the author says that research will be required for many years in order that

Neuropsychiatry Looks at Man's Brain and Behavior

Stanley Cobb

Foundations of Neuropsychiatry. (6th ed.) Baltimore: Williams & Wilkins, 1958. Pp. ix + 313. \$5.00.

Reviewed by LEONARD CARMICHAEL

Dr. Carmichael, Secretary of the Smithsonian Institution in Washington, earlier for a long time President of Tufts College, always the productive psychologist, has long had for special interests physiological psychology, prenatal developmental psychology, and postnatal human psychology. He is a recent author of Basic Psychology (Random House, 1957; CP, Aug. 1957, 2, 203-205) and reviewed for CP Ronald Fletcher's Instinct in Man (June 1958, 3, 161f.).

AALEXANDER POPE's couplet, 'Tis with our judgments as our watches, None go just alike, yet each believes his own,' applies to the variety of modern scientific approaches to the understanding of human nature. If a statistical average of watches gives more reliable time than one alone, then the present volume should not be neglected by those who are interested in understanding the present-day study of men-

tal life, even though they themselves carry quite different timepieces.

Stanley Cobb is Bullard Emeritus Professor of Neuropathology in the Harvard Medical School. He is also Consultant to the Massachusetts General Hospital, the Boston City Hospital, and the Children's Hospital of Boston. He is a past president of four notable societies, the American Neurological Association, the Association for Research in Nervous and Mental Diseases, the American Association of Neuropathology, and the Psychosomatic Society. He is internationally known for his publications and as a teacher of inspiring power.

The present book is the sixth revised and enlarged edition of his work formerly known as *A Preface to Nervous Disease*. The author points out that, since the previous edition which appeared in 1952, so many advances have taken place in neurology that a large part of the book had to be rewritten.



block after block of fact may be built up to explain observations and to support or refute the theories now promulgated in psychiatry and psychoanalysis.

The part of the book that deals with general problems of anatomy and physiology emphasizes the concept of reverberating circuits within the central nervous system as given in the work of Forbes, Kubie, and Lorento de Nó. Here the mathematical and neurologically work of Wiener and of McCulloch is considered. Throughout the entire present volume the old idea of an essentially static nervous system of the switchboard type is abandoned in favor of a view that emphasizes dynamic activity and makes the old stimulus-response concept of psychology seem, as the author says, "naïve indeed."

An admirable chapter on functional localization in the cerebral cortex brings together much recent work that is of significance to any serious student of psychology. This analysis leads into a carefully worked out consideration of consciousness as a function of the organism in action. Sleep is discussed in these terms, and so is "clinical unconsciousness." In discussing the latter concept, Dr. Cobb points out that Freud's *unbewusst* means "unbeknown" or "forgotten," not unconscious in the sense of a complete "blackout." His discussion of association and of symbolization is also especially interesting to the psychologist.

THE author dismisses the current distinction between functional and organic nervous disease. It is important, he observes, not to let mythology creep into our thinking by use of such terms as a "purely functional symptom." He says, "It is extraordinarily difficult to explain to a man trained in the school of pathological anatomy that his criterion for calling one disease organic and another functional is entirely artificial, that the deciding factor is the instrument he happens to use to record the abnormality of the organ under observation." At present, he notes, the instrument most relied upon by those who like to make this distinction is a microscope with a limit of magnification of about twelve hundred diameters.



STANLEY COBB

Dissecting the brain of a herring gull

Recent advances in the understanding of cerebral circulation, cerebral-spinal fluid, epilepsy, and pain are presented. Some of the author's observations concerning formal psychology are interesting. He speaks of the fact that much of psychology is in reality a study of the physiology of the sense-organs. To him neurology deals with the reception and integration of sense impressions within the central nervous system and with reflex and more complex responses to such stimulation. "The study of symbolization brings one to the border land where neurology and psychology meet in the field of language."

The reviewer wonders if the author has yet worked through to his own satisfaction a definition of the word *stimulus* that will be fully useful to him in expounding his own clear, monistic theory of an active organism existing in an environment. For example, Dr. Cobb says, "Experiments with hypnosis prove that even in one's most alert moments innumerable stimuli do not get conscious attention, but many of these stimuli outside the field of attention are taken in and remembered." Again, on a much later page, he says, "The stimulus-response reaction may occur in seconds, or it may be modified by stimuli that arrived in the brain years before and have been stored as memories." This reviewer feels that if the author limited his use of the word

stimulus to a present, physically measurable, external energy that activates a receptor organ, he might be able to handle some of these problems with less danger of ambiguity.

Any psychologist who has not reviewed the important advances that neurology has made in this decade cannot fail to be enlightened by reading the pages of this book. The author is a master teacher of modern neuropsychiatry and a true medical philosopher.

Nova Veteris Sunt Addenda

Ján Bakoš (Ed. and trans.)

*Psychologie d'Ibn Sīnā (Avicenne)
d'après son oeuvre Aš-Sifā'.*
Prague: Editions de l'Académie
Tchécoslovaque des Sciences, 1956.
Pp. ix + 245. 24,15 Kcs.

Reviewed by NOËL MAILLOUX

who, because of his many professional activities, is well known to all who know Canadian psychology. Father Mailloux founded the Department of Psychology in the Université de Montréal, Le Centre d'Orientation for child guidance in Montreal, and Montreal's Centre de Recherches en Relations Humaines. He is Professor of Psychology at the Université and has published many papers on educational, dynamic, and religious psychology, on personality theory and psychopathology. He is an ardent believer in the continuity of the present with the past, and CP accepted his title for this review: Let the new be added to the old.

UNLIKE biology, medicine, and other natural sciences, psychology seldom takes pride in its long history. It is prompt to proclaim that its birth took place in our age of science, only some few decades ago. The fear of being reminded of its philosophical descent almost inevitably evokes the bashful denial of a generally ignored past. Hence the task of presenting to contemporary psychologists a textbook written nearly a thousand years ago has become a dis-

concerting one. Amazingly, nevertheless, one must regard it as a timely one, for, all over the world, scientists are displaying an intense scholarly activity in celebrating the millennium of a genius, who has made a tremendous contribution to psychology.

It is well known that, in devoting the sixth book of his monumental work, *Aṣ-Ṣifā (The Cure)*, to the consideration of psychological problems, Avicenna has exerted a deep and lasting influence on all the great scholastic thinkers of the Middle Ages, for many of them found there a powerful incentive for writing original commentaries on Aristotle's *De Anima* and elaborating an ethics, based on an empirical and dynamic conception of human nature rather than on legalistic formalism. In those days no one pretended to become a moralist without first acquiring a profound knowledge of psychology.

DURING the twelfth century, the partial transcription of the *Aṣ-Ṣifā*, made by Gundissalinus, fostered the wide dissemination of Avicenna's ideas and helped to perpetuate their influence on traditional scholastic thought; but now the time has come for a more thorough scrutiny of the authentic sources, and Bakos' new edition and translation represent a small part of the enormous work undertaken by a whole team of scholars to provide us with a well-established text and a correct version. The reader who is not familiar with ancient terminology will also find well-documented notes, that clarify the more obscure passages of the text.

Unversed in Arabic, the reviewer cannot check the accuracy of the French translation, which to him frequently appears awkward and bumpy. It is his impression that the translation could be vastly improved. The evident effort to follow the Arabic text closely has led the author to sacrifice elegance and even clarity to a somewhat compulsive verbatim reconstruction, one which entails the multiplication of cumbersome parentheses and makes the reading tiresome.

Since the translator's intention consisted merely in editing the authentic text of Avicenna and in making a scientific

translation for the use of modern scholars, he can hardly be reproached for restricting his introduction to a narrow and sketchy historical perspective. He might have aroused greater interest for this transcending work if, with the help of the abundant recent literature on the subject, he had attempted to offer a meaningful and provocative description of the insightful approach then used for the study of psychological phenomena. Here, perhaps, he would have found a nice opportunity to display the creative performance of what Avicenna has called the "holy intellect." Nevertheless he helped us to realize that, with the development of interest in and concern with the dynamic interpretation of behavior, we can no longer afford to ignore the points of view and findings of our gigantic ancestors.

Certain assertions made by the author would require some further qualification. For example, anyone who has read the text carefully will find it hard to agree that it contains no significant traces of Platonic or Neo-Platonic influence. Similarly, it would seem to be going too far to say that Avicenna wrote the earlier *Aṣ-Ṣifā* uninfluenced by his personal point of view which he finds it proper to explicate in his later *Mantiq al-maṣriqiyyin*. Although he remarks that the *Aṣ-Ṣifā* was written especially for those who were fond of the peripatetic doctrines, the historians are nevertheless in general agreement that the *Mantiq al-maṣriqiyyin* does not reveal any new line of thought, albeit it may have been written in a more personal vein.

A mere look at the table of contents would allow the contemporary scientist to realize that, with very few modifications, it might well serve to describe the materials included in our present-day textbooks. It is certainly beyond the scope of this short review to define the various perspectives in which the same subject matter is being treated by ancient and modern thinkers. Nevertheless we may at least express the hope that the editing of these important documents of the past and their translation into modern languages will lead to the revision of many judgments of simple terms as well as to the building up of a more comprehensive and penetrating psychological synthesis.

Educators' Orthopsychiatry

Morris Krugman (Ed.)

Orthopsychiatry and the School.

New York: American Orthopsychiatric Association, 1958. Pp. xii + 265. \$4.00.

Reviewed by BERTHA M. LUCKEY

who organized the Psychological Service of the Cleveland Public Schools forty years ago and has directed the Service ever since.

THE American Orthopsychiatric Association has long been interested in the multidiscipline approach to the areas of human growth and adjustment. They early recognized that man was so complex that no one discipline had all the answers but needed the 'know-how' from many different ones. At first, there was little attention given to the school setting, but recently more and more speeches and reports have been presented at the annual meetings where the school personnel have been included as a member of the team.

Orthopsychiatry and the School is a selection of papers and symposia which will be of special interest to the educator. As is always true where there is a long list of contributors, the articles vary in points of view and readability. This is especially a problem where the contributions, to be fully understood, may need a wider knowledge of the theory and concepts of a given area.

It is fortunate that with such diverse material, Morris Krugman was selected as the editor. His wide experience as an educator and as a member of an orthopsychiatric team enables him to speak for both groups. He has prefaced each article with a short comment on the content. These notes should be especially helpful to the educator as he studies the material.

The organization and selection of the material is excellent and the book will make a real contribution to this important new field in education. It can be studied with profit by those in ad-

ministration and those planning for our schools of the future. While it does not provide any quick or easy solutions, it does, nevertheless, open up new avenues of thought.

The Human Motive in Religion

Peter A. Bertocci

Religion as Creative Insecurity.

New York: Association Press, 1958.

Pp. 128. \$2.50.

Reviewed by DONALD SNYGG

who is chairman of the Department of Psychology at Oswego Teachers College of the State University of New York. In his early training he was influenced by R. H. Wheeler and E. A. Bott and his primary interests now are in phenomenology, comparative psychology, and anthropology—though he would wish it said that his primary interest is psychology, for he has resisted specialization as much as one can in these days of accumulating special facts, concepts, and words.

PSYCHOLOGISTS claim all human behavior and experience as their field but in one part of the field they walk gingerly or not at all. Among the 8542 books and articles listed in 1956 in the subject-index of *Psychological Abstracts* only 33 dealt with religion whereas the list of references for the Rorschach Test, beginning on the same page, totaled 122.

There are two reasons for the failure to push into one of the major areas of human activity with psychological concepts and methods: timidity and lack of appropriate concepts.

The American psychologists who have written on religion have, as a rule, been men of high personal and professional prestige. They have not written about religion until they have reached the peaks of their careers, having been full professors for several years. Most of them have been men of strong religious convictions but, almost without excep-

tion, they have treated the topic without threatening or annoying anyone.

Peter A. Bertocci, Borden Parker Browne Professor of Philosophy at Boston University fits most of these specifications. He is a psychologist of standing, now in his sixth year of teaching the psychology and philosophy of religion in an institution identified with the American Protestant tradition. His book, however, breaks ground in two ways. It is an attempt to apply the concepts of human nature and motivation, inherent in phenomenological and transactional psychology, to problems of Christian theology, and what he says will annoy some readers, particularly those who regard religion as an inexpensive tranquilizer.

Three of the questions Bertocci asks are of particular interest to psychologists:

1. What experiences in human life make living worthwhile?
2. What is the function of religion?
3. How can people live together?

In answering the first question he comes out for growth and creativity. Creativity is thus equated with good, and he has an eloquent section on the evils of basing religion, society, or education on the assumption that the basic need is for security. Man, by his nature, can be happy only when he is growing and creative, and we can live in harmony with others, enhancing our own creativity, only by enlarging their opportunities for creativity.

Religious experience, which Bertocci defines as experience of a Presence, is good because it enables the individual to experience and share God's creativity.

THE AUTHOR's point of view is consistently phenomenological and lies in an area roughly bounded by Gordon Allport, Cantril, Maslow, and Rogers. The individual's goals are experiences and feelings. Each experience is a function of the total field of experience. As a result, differences in religious belief are expected as the inevitable result of individual differences in experience and maturity. One contribution to phenomenological theory is Bertocci's unequivocal stand for free will. After wobbling on this issue myself, I am convinced that

this is the only tenable assumption in a phenomenological system. Considering the individual as an *individual*, without breaking him into subsystems, he does indeed select his experiences, thus building his own personality. The fact that his selections are based upon selections he has made in his past is beside the point.

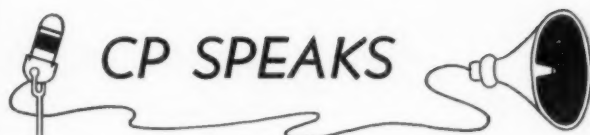
Bertocci's adoption of creativity as the ultimate human need has led him to a number of delightful insights. He gives, for example, an excellent discussion of parent-child relations and argues persuasively that the 'need for love' is not a 'need to be loved' but a 'need to love.' The various problems of religious doctrine similarly are handled in ways that are consistent with the psychological point of view.

It is doubtless true, nevertheless, that readers who are primarily interested in psychology will be put off by the fact that Bertocci himself is primarily interested in religious problems. It seems to the reviewer that while this is the only psychology which will fit his religion, other religions, including humanism, will fit this psychology. Bertocci's assumption that man is the product of a special creation, the only animal with free will, does not accord with my biases or my experiences in the animal laboratory. From what we know of comparative psychology it seems more reasonable to put the threshold of consciousness, free will, and our insatiable need for self-enhancement, self-actualization, self-worth, creativity or what you will at that point in evolution where an animal develops distance receptors and with them the need to deal with objects at a distance (and consequently in the future) and a need to select the parts of its environment to which it will respond. Consciousness, from this point of view, being an emergent consequent of the organizational properties of protoplasm, the postulation of a special fiat to explain human nature becomes unnecessary.



Men must not allow themselves to be swayed by their moods, believing one thing at one moment and another at another.

—BERTRAND RUSSELL



CP SPEAKS

BEHAVIO(U)R

BEHAVIOR is the new word. *Psychology* is still around and important, but, if you are anxious to give an impression of up-to-date styling, you work *Behavior* into the name of your book, journal, institute, center, laboratory, or symposium. Thus 1958 witnessed the start of two journals that deal with behavior, a brand new one and a reorganized one. And they represent the new excitements on the two behavior-cathected continents—Skinnerianism in America and ethology abroad.

The Skinnerians produce the *Journal of the Experimental Analysis of Behavior*, Vol. I, No. 1 in January 1958, four times a year "at least," executive editor C. B. Ferster, with a supporting board of 15 young (except for Skinner and Keller) enthusiastic (including Skinner and Keller) editors, plus two enthusiastic hard-working non-PhD wives of these behavior-oriented neopsychologists. It is a young in-group with lots of steam, driven by its need to get its research out into public in spite of traffic jams in the established journals. *CP*, the old graybeard, keeps thinking of John Elliotson bursting out with the *Zoist* in 1843 for similar reasons. He was the "crazy" chap who believed both in hypnosis and in the use of the stethoscope, the newfangled French device. Who are these 16 young men publishing the *JEAB*? Nine of them have Harvard PhDs in 1951 or later except for Skinner's and Keller's in 1931. They are the Harvard Skinnerians. There are five Columbia PhDs via Keller's Columbia enclave. Keller was infected by Skinner at Harvard in 1931 and this disease is readily contagious with the right carrier. That leaves only one Chicago PhD (J. V. Brady, 1951) and one from Minnesota (P. B. Dews, 1951, pharmacologist). On what do they

publish? In the first issue there are four studies of schedules of reinforcement, another on reinforcement, another on pigeon thresholds got by conditioning, one on learning plateaus that do not exist, one on techniques, and two on drugs and behavior. It is a live crowd and a live journal, and *CP* believes, in spite of Wayne Dennis' dubiety, that this is their age-decade for effective productivity and scientific progress. Eventually the in-group as such will have disappeared, dying of inanition like introspectionism or of success like Gestalt psychology.

How different the other journal! It is a case of metempsychosis—or perhaps we should invent a word *metempracticus* in these days when behavior has ousted the psyche. The older *British Journal of Animal Behaviour* (5 vols., 1953–1957) has changed its name to *Animal Behaviour*, kept the *u* in *Behaviour*, but otherwise sought to diminish the impression of insularity by getting an editorial board of 17 from Great Britain, 11 from the United States. This is no group of master-minded youngsters. It includes Tinbergen and Julian Huxley, with seven of the seventeen Cantabrigians. And certainly one feels a unity in this undertaking, a unity derived from the stimulation by ethology. These men want to know how animals behave, not how the behavior of living organisms is determined and reduced to its conditions by experimental analysis. The two undertakings, Skinner's and ethology's, are different. Thus in this reincarnated journal the taxonomy of behavior becomes important. In the 13 articles of its first number we learn about the behaviors of cattle, rats, mice, birds, doves, hens, chicks, octopuses, locusts, grasshoppers, and aphids. More specifically we note that the subjects considered are the traits of doves, the settling responses of aphids, the

stridulation of grasshoppers, learning by octopuses, the string-pulling of birds, potassium concentration in the locust, the rat's shock threshold, the pushing response in cattle, the lion's aggressiveness, the social organization of chicks, and the automatic feeding of small animals. It is a different world, and *CP* thinks that this work is in phase with the *Zeitgeist* and is thus destined to prosper.

Anyhow here are two *Vales*, one for each movement toward the further understanding of behavior. Very different movements they are, with very different philosophies of what science should be like. One has the energy of youth back of it, the other the experience of greater age. Science does not want uniformity. It needs variety and freshness of effort. Here one finds both difference and drive. Good luck to both of the new undertakings!

IS ALCOHOL ALCOHOLIC?

THE adjectival noun! The scholar hates it, yet usage condones it, and the scholar compromises, presumably because he puts intelligibility to the reader ahead of grammatical elegance. Now here is Dr. Edith Lisansky of what *CP* thinks should be called Yale University's Center for Alcohol (Sic) Studies, accusing *CP* of unscholarly inexactitude for being led by its sense of propriety into printing the *Yale School of Alcoholic Studies* (*CP*, Aug. 1958, 3, 230). That was wrong. The studies are non-alcoholic. They are alcohol—not alcohol itself, of course, but adjectively alcohol. That's what sacrificing a principle leads you toward.

You have the same trouble with *Psychology*. Yale has a *Department of Psychology*, no *Psychology Department* like so many of its more indecorous contemporaries. The Editor of *CP* wrote a book that inaugurated the *Century Psychology Series*, an undignified title chosen in spite of his reluctance. Yet no arbiter of elegance ever wanted to cook his meal on a gaseous stove. You don't settle these issues; they grow into the language one way or another—because Yale has an *Alcohol Center*, because *CP* wants an *Alcoholic Center* or *Alcohol* (Sic).

MARRIAGE COUNSELING

THE AMERICAN ASSOCIATION OF MARRIAGE COUNSELORS has just published a casebook, called *Marriage Counseling: A Casebook* (Association Press, 1958, pp. 488, \$6.50). It is edited by Emily H. Mudra, Abraham Stone, Maurice J. Karpf, and Janet Fowler Nelson. CP asked Dr. Paul Vahanian of Teachers College, Columbia, to comment on the volume and this is what he says:

Marriage counselors and other interested persons should find in the book some much needed clarification regarding the "principles, processes, and techniques" of premarital, marital, and individual counseling. The latter category pertains to those single individuals who are unattached but are interested in marriage.

The editors have included in the casebook a broadly representative sample of forty-one cases which illustrate the kinds of problems dealt with by marriage counselors and the variety of procedures employed by them in attempting to assist people in resolving their conflicts. Included in the sample are the contributions of counselors from such major professions as family-life education, law, medicine, the ministry, psychiatry, psychology, social work, and sociology.

The *Casebook*, although not without its shortcomings, represents a significant contribution to the field of marriage counseling. It should serve as an excellent reference work or text for all students, broadly speaking, of education for marriage and family life.

SEMANTICIST WISDOM

ROGER BROWN, at CP's request, comments as follows on the second edition of Stephen Ullmann's *The Principles of Semantics* (Philosophical Library, 1957, pp. 346, \$10.00).

Stephen Ullmann is Professor of Romance Philology in the University of Leeds. He published his first edition in 1951, and now this second edition has in it a new Supplement entitled *Recent Developments in Semantics*. The supplement is only 21 pages long and does little more than mention and classify the major works of the recent period. Since all of the original work appears again in this second edition, there is much here to interest the new generation of psychologists who are studying language.

Ullmann has been more influenced by European than by American work and his references expose the parochialism of our own 'psycholinguistics.' He reviews, for instance, the work of Leo Weisgerber and Jost Trier and others on the *sprachliche Zwischenwelt*, the 'linguistic screen' that stands between man and reality. In their basic views concerning language and cognition these scholars have much in common with Benjamin Whorf but, where Whorf made his case with data from American Indian languages, they make theirs with German, French, and English.

Also of much interest is a résumé of Ullmann's own empirical study of synesthetic metaphors in French and English poets. He has come upon some fascinating generalities; e.g., the most common type of synesthetic metaphor seems to be the use of the vocabulary of touch to describe auditory experiences (*soft* sounds, *sharp* sounds, etc.). The converse type of metaphor (auditory terms for tactile experiences) occurs but rarely. Then, in addition, there is Ullmann's clarifying discussion of the kinds of 'laws' that we may hope to find in historical and descriptive semantics. In sum, the book is a scholarly and wide-ranging work which heretofore has not much influenced the American 'structuralist' school of linguistics but may, in this new edition, catch the new psycholinguists who are not so phobic about meaning.



Ignorance of naturall causes disposeth a man to Credulity, so as to believe many times impossibilities: For such know nothing to the contrary, but that they may be true; being unable to detect the Impossibility. And Credulity, because men love to be hearkened unto in company, disposeth them to lying: so that Ignorance it selfe without Malice, is able to make a man both to believe lyes, and tell them; and sometimes also to invent them.

—THOMAS HOBBES



Early Childhood: Facts

Catherine Landreth

The Psychology of Early Childhood. New York: Alfred A. Knopf, 1958. Pp. xviii + 412 + xiii. \$8.75 (trade); \$6.50 (text).

Reviewed by HELEN L. KOCH

who is Professor of Child Psychology at the University of Chicago. She was for fifteen years Director of the University of Chicago's Nursery School. Her chief publications are concerned with the social development of the child under elementary school age. She has reviewed Florence Goodenough's *Exceptional Children* (Appleton-Century-Crofts, 1956; CP, 1957, 2, 14).

THIS textbook deals chiefly with the psychological development of human beings—or would it be better to say the American child—from the initiation of life through the preschool years. It is, indeed, a fact-filled volume. Few generalizations are made here without an accompanying account in clear, brief form of the experimental or survey type of evidence upon which the generalization rests. The literatures of clinical, cultural, and comparative psychology have not been drawn upon particularly heavily, for the author hews closely to the experimental-genetic line. A practical, common-sense type of application of the results of investigation is made to the problems of child care and guidance. As a long-time Director of the nursery school at the University of California at Berkeley, the author has a rich experience in child guidance on which to draw. The text does not lean heavily on any one psychological system, as does, for instance, Alfred Baldwin (*Behavior and Development in Childhood*, Dryden, 1955). Rather it is outstandingly eclectic. Even basic organizing concepts, such as learning and maturation, receive toward the end of the book a rather brief, though, to be sure, appropriately extensive treatment in view of the scope of the volume. The reader is not, for instance, led through

the intricacies of the controversies in the field of learning theory. Rather the volume has a practical set, though it would be false to give the impression that it has popular tone. It offers interpretations in a relatively concrete and jargon-free (as opposed to an abstract, theoretical, and system-bound) form. The text seems directed to an advanced college undergraduate population.

In addition to the chapters usually found in the texts in this field, chapters on sensory-perceptual, motor, intellectual-adaptive, emotional-social development, there are to be noted in the Landreth book discussions of the major currents that have structured the field of child psychology, of genetics, of prenatal development and conditioning variables, of psychological equipment at birth, of learning, maturation, and the social institutions which can be highly determining of the attitudes and skills of young children. The last chapter of the book, which treats of the major problems that the investigator in the field of child psychology faces, as well as the common pitfalls in research, dismisses the reader with at least the admonition of *caveat emptor*.

The text is not organized, in the main, as is that of L. J. Stone and Joseph Church (*Childhood and Adolescence*, Random House, 1957) around stages in development, though the discussion of the prenatal and neonatal periods are of this type. Instead, a description of one phase of development at a time, is offered. This organization facilitates brevity and makes for one sort of clarity, but, of course, it also loses something in the way of making clear the interplay of forces at any one age. One interesting point developed in the book, one which gets short shrift in most texts, is that the child molds his parents as well as *vice versa*. The interactive, dyadic nature of the relationship is recognized, though the idea might well have been carried further to other environmental gestalts. A difficult child can color the personality of his peers and make a wreck of a good teacher!

One could scarcely, without being picayune, raise questions about some of the interpretations offered or about the neglect of others. Rather it is more in order to celebrate the thoroughness of

the text, its concentrated character, as well as its sparkle. The writing is crisp and laconic, the humor, which pervades the book, pithy. As a text the volume has many merits. At the beginning of each chapter, as an appetite whetter, the author tells the reader what she will talk about by raising a dozen or so interesting questions; then she presents a clear-cut discussion of the issues, following which she offers a brief review of the important points that have been made. A reasonably conscientious student could scarcely miss any important point in the text. Graphs, diagrams, and

pictures are plentiful and vivid. Not only does the author give an extensive bibliography at the end of each chapter, but, lest the student be overwhelmed by the many references, a few carefully selected items are called to his attention as providing more extensive treatment of some significant issues. Available films bearing on themes discussed are described at the end of many chapters, as well as information supplied relative to sources from which copies of the films may be rented or purchased. Instructors and students may well find the text valuable.

Pains and Pleasures of British Teachers

John Gabriel

An Analysis of the Emotional Problems of the Teacher in the Classroom.

Melbourne: F. W. Cheshire, 1957. Pp. xvi + 224. 35s.

Reviewed by LAURANCE F. SHAFFER

Dr. Shaffer is Professor of Education in Teachers College, Columbia University, and the well-known Editor of the Journal of Consulting Psychology, where he has in recent years written a few hundred reviews of books and tests. He is the author of The Psychology of Adjustment (Houghton Mifflin, 1936) which he revised with E. J. Shoben twenty years later.

WHAT worries teachers, and what gives them a sense of satisfaction? British teachers—who seem to have been probed less often than American—were the subjects of this study by Gabriel, conducted from 1948 to 1950 and offered as his thesis for the PhD degree at the University of London. The author is now Lecturer in Psychology at the University of New England, Armidale, New South Wales, Australia.

The teachers' responses were evoked by mailed questionnaires, a method subject to well-known hazards. The initial problem of constructing the instrument was well solved. An unstructured inquiry, returned by 162 teachers, asked

only four questions—about frustrations, occasions for elation, occasions for depression, and needed reforms. The respondents to this 'open' inquiry wrote their answers freely. A second, more highly structured questionnaire was then compiled from the responses to the first phase. As a result of its empirical development, the major inquiry was comprehensive, objective, and clear.

The hazard of sampling was less happily surmounted. The number of questionnaires distributed was 2,550, but only 736 were returned, a meager 28.8%. The author is not unaware of the problem of biased sampling. He presents evidence that the respondents had a wide geographic distribution in England and Wales. The sample contained a larger proportion of men, more Secondary Modern teachers, and a greater percentage of teachers of large classes than the national norms. But other sources of bias were unestimated and probably cannot be. Did the inquiry appeal more to the progressive or the traditional, to the enthusiastic or the disgruntled? We can never know for sure,

and the interpretations of the results are thereby beclouded.

The main questionnaire was anonymous, but asked for sex, years of experience, size of class, type of school, and the like. Its three main sections dealt with sources of feelings of strain, sources of satisfaction, and sources of concern about children's behavior. Each item was rated on two five-point scales, one for intensity and one for frequency. Distributions of responses were reported for the entire group, and hundreds of chi-squares were used to test the relationships of the items to type of school, sex of teacher, years of experience, size of class, and type of district.

Except for the teachers in the Infant Schools (for children 5 to 7), the sources of greatest worry were academic. Large classes, slow progress, and the noisiness of children led the lists for both frequency and degree of strain. The demands of the syllabus and the criticisms of school authorities were the least frequent and the least worrisome. Among the pleasures of teaching, the intrinsic ones were emphasized—the effort and progress of the class and the spontaneity of the children. The extrinsic rewards, like the extrinsic annoyances, were less important. The teachers were not greatly elated by the appreciation of old pupils or by the praise of school inspectors.

Some relationships with background factors are of special interest. Younger teachers encounter children's misbehavior more frequently, but express less concern about it. Teachers in large cities evince less worry or strain and also less pleasure; their attitudes seem more detached.

The teachers' "degree of concern" with various misbehaviors of children bears a remarkable resemblance to the findings of Wickman in 1928. Stealing, lying, obscenity, and "negative attitude to authority" are the most seriously regarded; inattention and nonconformity in school are a little less so; while "withdrawn" behavior falls next to the bottom of the list, of less concern only than "fussy" behavior. More recent studies of American teachers have shown a shift of values, from emphasis on authority to emphasis on the child's mental health. Do British teachers lag behind?

A final section of the questionnaire was clearly a disappointment to its author. His teacher respondents were not in favor of progressive educational reforms such as the abolition of strictness of discipline, of academic timetables, or of examinations. Here again, the reader glimpses the weight of tradition.

Gabriel's study, as a whole, has some

clear values in spite of its severe shortcomings such as that of the sampling. It gives a warmly human picture of the teacher, ambivalently harried by the inevitable disorder of children but happy in their eager spontaneity. Similarities of British and American teachers, and their differences, will enhance both professional and international understanding.

A Prolific Perceptual Theory

Seymour Wapner and Heinz Werner

Perceptual Development: An Investigation within the Framework of Sensory-Tonic Field Theory. Worcester, Mass.: Clark University Press, 1957. Pp. 95.

Reviewed by ALLEN D. CALVIN

Dr. Calvin is Assistant Professor of Psychology at Hollins College in Virginia. He has long been interested in learning theory and perceptual theory and owes his early interest in perception, he says, to David Krech. With F. J. McGuigan he has recently published Current Studies in Psychology (Appleton-Century-Crofts, 1958), and presently he and five other authors will be getting out, through Allyn and Bacon, a theory-oriented introductory book.

THE authors of this interesting book are the foremost protagonists of the sensory-tonic field theory of perception. Both are professors at Clark University which has been the focal point of the theoretical and experimental work connected with the sensory-tonic position. Both men have written widely in psychology. For example, Wapner is a co-author of *Personality through Perception* (1954) and Werner wrote the *Comparative Psychology of Mental Development* (1940, 1948). While they have contributed to numerous areas of psychology, their work has usually centered around perceptual processes.

What is the sensory-tonic theory? This question can best be answered by turning to the first chapter of the present volume which provides its most up-to-date presentation. To give the reader a "feel" for the manner in which the

sensory-tonic position is presented, let us look at Postulate III.

Closely interrelated with the field-theoretical postulate (I) is the third postulate which pertains to the sensory-tonic nature of stimulation. This postulate has its origin in our attempt to deal with the problem of interaction of organismic and sensory factors. Rejecting the notion that perception is the synthesis of discrete functions, such as sensory on the one side and organismic on the other, our solution of the problem of interaction of apparently heterogeneous factors is this: factors which are interacting, though appearing to be heterogeneous, must be assumed to be essentially of the same nature. These considerations have led us to the third postulate: The psychophysiological processes, whether aroused by stimulation channelized through extero-, proprio-, or interoceptors, are sensory-tonic in nature. In particular, then, identity of psychophysiological processes in sensory-tonic terms makes possible the interaction between sensory factors, such as stimulation issuing from objects, and organismic factors, such as stimulation from many internal sources, somatic and visceral.

There are six such 'postulates' and they are supplemented by numerous hypothetical mechanisms. It is apparent that this theoretical presentation falls far short of the usual standards of philosophy of science.

It is extremely unfortunate that the authors' postulate system is so verbose

and lacking in rigor, for this failing may easily obscure for many readers the real importance of their theoretical notions. The following necessarily oversimplified statement contains essentially the main points of the theory: Perception must be considered as a field-state with both stable and unstable relationships. An unstable relationship is one where, given a certain stimulus, pertinent aspects of the 'organismic state' will tend to change, and this change will be toward a more stable relationship. Both *tonic* (motor) as well as *sensory* factors must be taken into account in understanding perception, and these sensory and tonic factors can both interact and be functionally equivalent.

IN the present volume, the authors have taken a hypothesis from developmental psychology, namely, that there is an increasing differentiation with age between the self (body) and the environment (object), and have combined this thesis with their sensory-tonic one as a jumping-off place for the eleven experiments that comprise the bulk of the book.

One cannot fail to be impressed by the tremendous experimental effort that was expended. They had 237 subjects who ranged in age from 6 to approximately 20. Different subjects were used at each age-level and almost all subjects were put through each of the eleven experimental situations. These situations involved various perceptual tasks, including, as in much of the earlier sensory-tonic work, the judging of the apparent verticality of a rod.

Some matters relating to design should be mentioned. Since almost all the subjects participated in all eleven experiments, experimental sophistication could have had differential effects on the performance of various age-levels, so that differences which were found among age-levels in the later experimental situations might not hold if naive subjects were used.

Another difficulty is that, although all subjects with IQs below 90 were discarded, there is a strong possibility that there were IQ differences among the various age-levels; that is to say, since the 18-19-year group were college stu-

dents and the others were selected from high school and grade school, it would seem reasonable to assume that, even with the below-90 IQs eliminated, the college students would be brighter than the high-school students and the grade-school students still less bright. Since other experimental work indicates that intelligence is a factor in perceptual organization, it is unfortunate that this variable was not better controlled.

The statistical analyses are presented in the appendix, usually in the form of a rather complex analysis of variance. These analyses are an excellent case in point of Cletus Burke's incisive polemic (at the 1958 meeting of the Midwestern Psychological Association) in which he argued against the indiscriminate use of complex analyses of variance. Such a statistical analysis, as Burke indicated, is often more of a handicap than an aid. (See, for example, the conclusions in the results section of Experiment I as contrasted with the actual trends as presented in Fig. 5.)

Keeping in mind the above limitations, I still feel that this book has much to offer. Let us look at the research inspired by the sensory-tonic position. There are 30 theses referred to in the bibliography, all of them having appeared in the last ten years. When one includes the many other publications by this group, is there any other theoretical position in perception that can show such experimental productivity in the last decade?

A quick examination of the present volume brings out at least one of the major reasons why this productivity has occurred. Every time you turn a page a number of experiments suggest themselves, and for this reason alone the book is well worth reading by any psychologist interested in this area. For the general psychologist, it gives a comprehensive picture of the sensory-tonic position and the kind of researches which stem from it.

One must always give credit to those persons who pioneer in a field in such a fashion that others are led to continue the attack on those problems under investigation. We can applaud these particular pioneers and yet hope that in the future they will blaze a slightly clearer trail.

All about Play

Ruth E. Hartley and Robert M. Goldenson

The Complete Book of Children's Play. New York: Thomas Y. Crowell, 1957. Pp. xiv + 462. \$5.00.

Reviewed by PAUL A. WITTY

who is Professor of Education at Northwestern University and Director of the Psycho-Educational Clinic there for quite a long time now. He is especially interested in the exceptional child, in the causes of reading difficulty, and in the effects of the media of mass communication, like TV, on the development of young people. He is the author or co-author of a score of books on these subjects and related ones.

Two specialists in the fields of child development and guidance have collaborated to produce a comprehensive volume, ambitiously entitled *The Complete Book of Children's Play*. In the first part of the book, Ruth E. Hartley discusses the interests, activities, needs and problems of children of ages one through seven; and, in the second part, Robert M. Goldenson deals with children's activities and problems from age eight through the adolescent years.

The writers have adopted a broad concept of play and have emphasized its educational and therapeutic values. They believe that play is "not only the child's response to life; it is his life, if he is to be a vital, growing, creative individual."

Description of the developing play activities of children are set forth at the different age levels in a clear, provocative, and readable manner. Yet the authors recognize the fact that "every child is different from every other child" and that "the 'average' four-year-old or seven-year-old is a mythical creature, made of bits and pieces of many fours and sevens." The reader is told in the first chapter that "no child on the face of the earth is likely to do everything as described in this book. Many will come close in most respects, but in one

way or another will lag behind or spring ahead." Parents are wisely admonished to "use their children as the measure of the book, not the book as the pattern for the child."

Nevertheless, the descriptions of children and their activities are presented in such a way as to be very helpful to parents. For example, the following account of a young child will call the mother's attention to a practical device which "saves the toys—and the mother's back!"

When the baby approaches six months it's time to start tying things down. Picking up is a new skill the baby loves to practice. Put a spoon in front of him, and his eyes brighten as he concentrates on it. Carefully his fingers curl around it, slowly it is raised. Then, heady with success, the child waves it and bangs it until, inevitably, he loses his grip and it flies away. At this stage, tying half a dozen small toys to the side of the high chair or carriage is a help to a busy mother (p. 14).

And the following description of the four-year-old will prepare the parent for the child's transition from play as fantasy to play as reality.

Four shows how preoccupied he is with the world of grown-ups when he is playing make-believe. Compared with the activity of Three, his is almost sober. The lions and tigers of his earlier fantasies have largely given way to truck drivers and delivery men. Little girls are mothers and nurses.

From this time on, as the sexes begin to go their separate ways, boys and girls are apt to spend their imaginative lives in different worlds—although a little girl will still invade the boy's province of pirate and space pilot, and the boy may yet cling to the companionship of a cherished doll (p. 95).

At each age level, a description of the child precedes or accompanies the discussion of the ways that play can satisfy his needs and interests. The chapter on *What Play Can Do for Teen-Agers* will prove to be of unusual value for parents and teachers who seek constructive steps in dealing with the adolescent.

There are many ways of helping our teenagers over the hurdle of adolescence. We can give them more love and understanding. We can listen sympathetically to their doubts and worries. We can treat them in

more adult ways, giving them increased independence and increased responsibility. We can try to ignore their rudeness. But there is one instrument that can be particularly versatile and effective, though it has never been given enough recognition or sufficient chance to work its wonders. That instrument is play—creative play.

At first mention, play may appear a frivolous answer to the plight of the teenager. Yet it would be hard to find a single area of his life where some form of recreation cannot come to his aid (p. 256).

The authors' sympathetic understanding of the teen-ager is paralleled by their competence in making practical suggestions. In the section of the book entitled *A Place of Their Own*, they write:

If you are looking for a healthy answer to your teen-ager's love of fun, the place to find it is in a Teen Canteen, Gals and Pals Club—or whatever it may be called in your locality. Let's hope there is one within range of your boy or girl, since these centers are built to order for the 'high school crowd.' Above all things, these young people want to mingle with members of the opposite sex, they want to laugh and dance and make noise, they want to talk and eat in groups—and they want all this in a place they can call their own (p. 258).

The importance of hobbies in the life of the growing child is emphasized in Chapter 12, *We All Need a Hobby*. Lists of hobbies are given as well as suggestions for parents to follow in guiding their children in the pursuit of rewarding hobbies.

Another excellent chapter is devoted to *Ready-Made Play: Television, Radio, Comic Books, Movies, Records*. Especially pertinent are the suggestions at the close of the chapter for *Managing the Mass Media*. Since large numbers of children and youth spend inordinate amounts of time with television and other mass media, this chapter might have been given greater prominence in the book. It is unfortunate, moreover, that the author did not utilize more extensively the results of the investigations in this field.

A most helpful appendix includes lists of household items "to save and use in play," play materials, musical and story records, children's story books grouped according to suitability for different age

levels, and hobby books arranged according to subject.

This ambitious effort to prepare a complete book of children's play achieves its purpose to a remarkable degree. The book has encompassed many and varied aspects of play. It is based upon experience, keen observation, and an apparent familiarity with research studies. It is, moreover, written in a lively way that will appeal strongly to the parent and will attract his interest. The diversity of content and the practicality of the suggestions found throughout the book enhance its worth. The volume should prove a welcome addition to the parents' library, and it will also provide a useful source for students of psychology and education and for guidance workers and recreation leaders.

Libido Updated

Robert Fliess

Erogenicity and Libido: Some Addenda to the Theory of the Psychosexual Development of the Human. (Psychoanalytic Series, Vol. I.) New York: International Universities Press, 1956. Pp. xxi + 325. \$7.50.

Reviewed by SEYMOUR L. LUSTMAN

who is Associate Professor of Psychiatry in the Child Study Center of Yale University and at present Research Coordinator in the Center. He has a PhD from the University of Chicago and an MD from the University of Illinois with psychiatric training at Yale. His publication lies mostly in the fields of psychosomatic medicine and psychoanalytic theory.

LIKE any scientist who strives for more than phenomenology, Freud was led by his observations to the formulation and reformulation of certain postulates and hypotheses that ordered and interpreted the veritable maze of empirical data with which he was confronted. It constituted a body of theory that served, as does all theory, to stimulate and guide further development of

THE CENTURY PSYCHOLOGY SERIES

EDUCATIONAL PSYCHOLOGY

George G. Thompson
Eric F. Gardner
Francis J. Di Vesta

Written in terms understandable to the average college freshman, this text has a new and provocative interpretation of educational psychology. It details the principles of *personality development* and *group dynamics* without slighting the conventional topics usually covered. In Part I, the student is shown how psychology is applied to educational problems. Part II presents material designed to aid the teacher to understand the individual students in her classroom. In Part III the authors discuss ways of achieving optimal learning conditions. Part IV develops the principles of individual striving and adjustment in the context of social relations and group dynamics. The volume is extensively illustrated with especially prepared artist's drawings, attractive pictures and colorful charts. *To be published in March.*

DEVELOPMENTAL PSYCHOLOGY

THIRD EDITION

Florence L. Goodenough
Leona E. Tyler

About one-third of the material in this edition is entirely new. The remaining material has been thoroughly revised and brought up to date. In comparison to previous editions, there is more emphasis on *personality development*, *theory*, and the *adult years*. Moreover, a consistent theoretical emphasis ties the various sections together better than they were in the earlier editions. No previous training in psychology is assumed. Statistical concepts and new theoretical terms are explained where they occur. *To be published in March.*

READING DIFFICULTIES

THEIR DIAGNOSIS and CORRECTION

Guy L. Bond
Miles A. Tinker

This widely-used text is designed to provide the student preparing for classroom teaching, remedial teaching, or clinical service with an understanding of the problems involved and the best ways of handling them. The book discusses in considerable detail the various problems which arise from reading disability, describes how to diagnose reading difficulties in the formative stages, and offers specific directions for correcting reading disability. 486 pages, illus. \$5.25.

APPLETON-CENTURY-CROFTS, INC.
35 West 32nd Street, New York 1, N.Y.

both theoretic and therapeutic considerations. Now it has become the fate of his libido theory, with its rich instinctual, developmental, and energy concepts, to be that portion of psychoanalytic theory that divides much Freudian from Neo-Freudian thinking.

Robert Fliess is the son of Wilhelm Fliess, Freud's early confidant and correspondent, now suddenly brought into prominence by the publication of letters between him and Freud. Robert Fliess readily identifies himself as a "classicist," and as such addresses himself to a restatement of Freud's libido theory. What modifications he introduces are more a matter of emphasis than deviations from the so-called 'classical Freudian Theory.' As the son of one who was so intimately involved in the 'birth of psychoanalysis,' it is perhaps correct to state that Dr. Fliess has been immersed in psychoanalysis all of his life. In addition to this historical enrichment, his 25 years of clinical and teaching experience have been further enhanced by his broad interests in literature and music. While his cultivation brings to this volume a delightful artistic quality, I do not know how kindly most psychologists will take to the use of Shakespeare as evidence for theory—provocative though it may be.

The book under review is no primer of psychoanalytic theory. It is a complexly written volume which demands precise knowledge of Freud, Abraham, and more recent theoretical writers. Its base line is quickly established by the author's explanation and evidence for his acceptance of three controversial Freudian 'hypotheses'—the dual instinct theory, phylogenetic inheritance, and libido. In his formulation of concepts, Freud was only too well aware of the difference between observational data and the 'basal concepts' in science. He pointed out the fact that all bodies of theory have ultimately certain basic postulates, suggested by and consonant with the body of observation (1914, 1915). He stated the necessity for such basal concepts and the structure of them; concepts which function as conventional definitions which are indispensable. He also stressed their elusiveness and their modifiability by the material of observation. I frequently wonder if much is

gained by prematurely 'promoting' such basic postulates to the status of verifiable hypotheses and then speaking of evidence for or against them, especially in the absence of clearly defined methodological techniques by which they can be approached. The value of such theoretical basic postulates lies not in whether they are true or false (so difficult to ascertain), but rather in their fruitfulness in terms of further research and therapeutic modifications.

DR. FLIESS' volume is a tribute to the usefulness of one such basic postulate to which Freud was led as early as 1894. Freud's experience with hypnotic phenomena, with neuroses and especially the vicissitudes of symptoms (i.e., their appearance, disappearance, alterations, and reappearance) made him dwell at that time upon "the conception that among the psychic functions there is something which should be differentiated (an amount of affect, a sum of excitation), something having all the attributes of a quantity—although we possess no means of measuring it—a something which is capable of increase, decrease, displacement, and discharge, and which extends itself over the memory traces like an electrical charge." This basal concept in its day was fruitful in the subsequent maturation of the concept of libido and of the libido theory (with reference to source, genetic modifications, discharge, etc.). The measure of this today lies not in, is-it-true-or-false?, but in its continued fruitfulness for both clinical practice and research. Dr. Fliess' book demonstrates such fruitfulness.

As Fliess lays "stone upon stone," the biggest stones are phylogenetic inheritance and the oral phases of development. I doubt that his gentle chastisement of young men for their reluctance to accept phylogenetic inheritance, or his awareness of circularity in his discussion will make it any easier for most

psychologists to accept as evidence for a phylogenetic inheritance the same kind of data which caused Freud to postulate it. This is an area where many analysts find it more fruitful to think in terms of constitutional equipment (phylogenetically determined to be sure), such as the nature and range of perceptual apparatus, rather than "phylogenetic inheritance of 'dispositions' (i.e., modes of reaction) and 'content' (i.e., memory traces of experiences of past generations)."

Fliess takes some issue with the chronology of developmental sequence, stressing greater variability, overlapping, and a much earlier 'timetable' than classical theory dictates. The emphasis he placed upon the oral phases derives not only from its developmental import, but also from his concept of regression. He does not feel that fixation points alone can determine the extent of regression, but rather that in all regression there are certain aspects which are a complete regression, a suggestion that lends support to his critical positioning of the oral phase.

As one reads the case material, one cannot help but be as impressed, as was Dr. Fliess, with the extremely high incidence of external trauma experienced by his patients in childhood. This de-emphasis of the 'seduction fantasy' and the greater stress on external reality (bizarre erotic and aggressive traumata) in childhood experiences is felt by Fliess to be due to a high incidence of undiagnosed, ambulatory, psychotic adults in most families coming for psychoanalysis. That would be an interesting finding to substantiate from the practices of other analysts.

It is regrettable that the clinical material with which the book abounds must suffer from an understandable editing and censorship through which anonymity is preserved. Nevertheless, in keeping with Fliess's "mouth-eye unit," one "tastes the flavor" here of brilliant and creative clinical insights.



A book, like a person, has its fortunes with one; is lucky or unlucky in the precise moment of its falling in our way, and often by some happy accident counts with us for something more than its independent value.

—WALTER PATER

Original Wonder Drug

Harold E. Himwich (Ed.)

Alcoholism: Basic Aspects and Treatment. (A Symposium held under the auspices of the American Association for the Advancement of Science in cooperation with the American Psychiatric Association and the American Physiological Society, Atlanta, Ga., 27-28 Dec. 1955.) Washington, D. C.: American Association for the Advancement of Science, 1957 (Publication No. 47). Pp. viii + 212. \$5.75.

Robert S. Wallerstein, in collaboration with John W. Chotlos, Merrill B. Friend, Donald W. Hammersley, Ellis A. Perlswig, and G. M. Winship

Hospital Treatment of Alcoholism: A Comparative Experimental Study. (Menninger Clinic Monograph, Series No. 11.) New York: Basic Books, 1957. Pp. x + 212. \$5.00.

Reviewed by LEONARD UHR

who is Research Associate in the Department of Psychology and the Mental Health Research Institute of the University of Michigan. He wants to know what people are like and has worked successively on the assessment of medical students, personality changes during marriage, and now on the psychological effects of a raft of the new psychotropic drugs—but not alcohol; that's too old.

HIMWICH has arranged, edited, and summarized this symposium material with concision and clarity. The original meeting was held in December 1955 under the auspices of the American Association for the Advancement of Science, the American Psychiatric Association, and the American Physiological Society. The diversity of the spon-

soring groups gives a good indication of the scope of the collection. First, nine papers report on physiological and biochemical actions of alcohol. Included are *in vitro* studies of effects of alcohol on oxidation, and *in vivo* tracings of the pathway of alcohol metabolism, the effects of vitamin and of other deficiencies on intake and response to alcohol, and specific behavioral effects of alcohol on animals and on persons. These papers provoke speculation as to human reactions and hint at the enormous increases in our understanding of human behavior that can come from the mining of the physiological substratum. But, as the authors of these papers (along with most other authors) suggest, we should beware of overgeneralization and oversimplification. Gantt concludes this section, in a paper on autonomic and sensory effects on dogs and humans, with the remark, "If alcohol had been discovered only one year ago, instead of 5000 B.C., it would be the wonder drug of all wonder drugs."

Four papers present results from experiments on treatment of alcoholism with new pharmacological agents. Azacyclonol, the 'blocking agent' that has been shown so effective in counteracting psychoses induced by lysergic-acid and mescaline, is shown to be strikingly effective for alcoholic hallucinosis. Reserpine, in a partially controlled study, was found to shorten the duration of delirium tremens. Meprobamate is markedly better than a placebo for alcohol withdrawal with chronic alcoholics. These findings are extremely encouraging in the promise they offer both for more effective therapeutic methods and for tying the complex level of behaving and feeling to the physiological reactions involved through studies using these drugs.

The final group of five papers treats the broader questions of long-term therapy. Here the transient effectiveness of the chemical therapies and, worse, our own lack of knowledge at this crucial point, where all the lines of evidence should finally converge, become painfully clear. Here we see the problem of curing the alcoholic transformed into the problem of curing the maladjusted: we are suddenly confronted, along with the unique problems of alcoholism, with

all the questions, alternatives, and ignorance proper to psychotherapy.

This collection is a fine factual, and healthily undigested, presentation of research on alcohol. With one possible exception—the lack of long-term tests of therapeutic methods—missing, of course, because of the difficulty of this sort of study.

ROBERT S. WALLERSTEIN and his collaborators fill the gap with their two and one-half year "alcoholism research project," conducted at the Winter VA Hospital in Topeka. The task set was formidable: to test experimentally the efficacy of four different therapeutic procedures. All patients were given basic "milieu therapy"—ordinary hospital routine plus weekly group therapy, a "dynamically oriented activity program," and as much individual psychotherapy as requested. In addition, patients were randomly assigned to four treatment groups: Antabuse, conditioned-reflex therapy, group hypnotherapy, and "milieu therapy" (nothing additional). Psychiatric evaluations, Szondis, observational data, and physical, neurological and laboratory tests were collected in great detail (for example, twelve Szondis were administered) during 60-day to 90-day treatment and two-year follow-up. Analysis of the data is focused on general "improvement." A wealth of clinical anecdotal material suggests interesting hypotheses as to differential effectiveness of the therapies for different types of patients. In spite of the scope of this study it cannot be, as the authors themselves are the first to suggest, more than exploratory.

Only the most tentative answers can be given to the major question posed. Of the four therapies, only Antabuse may be superior; but the clinical impression points to a superficiality, the "oral-gratification" and compulsive ritualizing of this cure. Controls for this treatment can be questioned. (This was the only group of patients given a pill. These patients were continued on Antabuse during the follow-up period, so that in effect their therapy lasted two years longer than that of the others. Enough patients to destroy the statistical superiority of Antabuse went on

hinges at the end of the follow-up period.)

Some of these qualifications represent methodological decisions with which the critic might quibble (why no placebo control or attempts at blind evaluation?), but most are the legitimate and worthwhile results of an exploration: they give interesting leads, raise new questions, challenge the experimenter to hypothesize more cogently. The nice (and quite impressive) thing about this study is its honesty—its careful conception, seriousness of purpose, and humility in presentation.

Biologizing Animal Behavior

Karl von Frisch

Erinnerungen eines Biologen. Berlin: Springer-Verlag, 1957. Pp. 172. DM 26.

Reviewed by HERSCHEL LEIBOWITZ

who has been at the University of Wisconsin for the past seven years and is now Associate Professor of Psychology there. He was trained in sensory psychophysiology with C. H. Graham at Columbia, has studied neurophysiology and sensory physiology and has been a guest in von Frisch's Zoologisches Institut at Munich.

As one of the world's leading zoologists, Karl von Frisch is well known to psychologists through his now classical researches on the sensory capacities and behavior of insects and fish. In his delightfully succinct style, for which he is well known, these *Erinnerungen* trace the first 70 years of his life which include professorships at four universities (Rostock, Breslau, Graz, and Munich), the two world wars, National Socialism, and two lecture tours to the United States. The description of his trials, tribulations, and successes, first from the point of view of a student and later as an educator, gives some insight into the European social and

academic atmosphere in which academic psychology has developed, as well as the factors which directed and molded von Frisch's own career.

For those familiar with his experiments, the behind-the-scenes descriptions of his major research projects will enrich and add meaning to the results. For all, such descriptions can provide clues to the development of productive research. The pattern which emerges from von Frisch's experiences would seem to begin with his deep love for nature which manifested itself in his early childhood. This, combined with intellectual curiosity and keen observational powers, made him aware of phenomena, often by chance, which could not be understood in terms of existing information. These problems he analyzed experimentally until meaningful answers were forthcoming. An example is found in his discussion of his work with the now famous 'dances' of bees, a behavior pattern by which scout bees transmit information concerning the location of a food source. In 1919 a chance observation of the dances led von Frisch to hypotheses concerning their significance and subsequently to series of experiments which have produced one of the most remarkable chapters in the story of animal behavior.

Although the book is liberally supplied with personal events of limited general interest, he treats of many topics which have broad implications. As a result of personal contacts and traveling, von Frisch has come to know and admire America and many aspects of its educational system. He feels, however, that the European method of training, in which the student is required to assume much more responsibility than is generally the case in the States, is more favorable for encouraging independent scientific thinking. While recognizing that America's relatively strong emphasis on formal instruction and its long academic semesters benefit the mediocre and the average student, he feels that the future of science is better served by the European system because it provides the superior student with the opportunity of integrating instructional material and pursuing independent reading and thought.

After reading the wide variety of

projects, both basic and applied, which engaged von Frisch, one is impressed with his success in applying laboratory data to practical problems. By utilizing results of studies on the chemical sense and communication behavior of the bee, he devised a technique for controlled pollination of field crops which increased yields by as much as 40%. This achievement, undertaken as an emergency measure during the severe post-war food shortage in Europe, is an excellent example of the value of 'unpractical' basic research without which the applied problems could not have been attacked. It is interesting to speculate as to why it was so easy for von Frisch to shift back and forth between basic and applied research. Is this versatility a function of the field in which he works, or is the close intellectual contact which he has always maintained with nature responsible? The answer to this question is relevant to the current methodological controversy between European and American behavioral scientists. For those in the latter group, who prefer to formulate their research problems within the context of the laboratory and with only incidental concern for the animal per se, this book will provide an account which exhibits many of the virtues but is considerably more rigorous than that of the majority of European ethologists.

THE main asset of the volume is that it represents the point of view not only of a biologist, but of biology as well: the basic approach, emphasized by von Frisch, includes first looking to simpler species for clues for the understanding of more complex forms. The development of academic psychology has been characterized by an ever increasing independence from such biological thinking, a tendency deplored by some and ignored by others. For those sympathetic to the biological approach, von Frisch's book will provide much evidence to support their point of view. For those who may be unsympathetic or unfamiliar with his position, it illustrates nevertheless the value of posing problems in a broader context without sacrificing the rigor of well-designed experimentation.

Uncoupling Psychoanalytic Research

Ruth S. Eissler, Anna Freud, Heinz Hartmann, and Ernst Kris (Eds.)

The Psychoanalytic Study of the Child. Vol. XII. New York: International Universities Press, 1958. Pp. 417. \$8.50.

Reviewed by CHARLES WENAR

Dr. Wenar entered psychology by way of a grand tour: Gestalt psychology at Swarthmore, behavioral psychology at Iowa, psychoanalysis in Chicago. He liked the last two but not enough to live in either. He wants to be an experimental clinical psychologist, reasoning from rigorous observation by way of psychoanalytical concepts. Just now he is Assistant Professor of Psychology in the Department of Psychiatry in the University of Pennsylvania School of Medicine.

SINCE the number of comprehensive reviews of *The Psychoanalytic Study of the Child* is considerable, the reviewer has chosen to evaluate this latest volume primarily from the point of view of a clinical psychologist sympathetic to the psychoanalytic approach to understanding personality, and of an experimental clinician on the lookout for promising empirical studies wherever they may be found.

The forte of psychoanalytic exploration of human behavior is that it ranges wide and delves deep. Thus the clinician who tends to view personality in stereotyped categories such as anxiety, aggression, and dependency, can rightfully expect this volume to jolt him out of that rut. Jacobson's article on normal and pathological moods, and Mittleman's study of motility, if taken in conjunction with her more basic article in Volume V, perform just this function. Both are thoughtful and thorough discussions which will enlarge the clinician's range of awareness.

Of the articles on therapy, Lowenstein's, with its searching questions

about the nature of interpretation in psychoanalysis, is the most rewarding. Geleerd presents some sensible suggestions concerning the treatment of adolescents, and Furman outlines a kind of therapy which lies somewhere between direct advice-giving and deep psychotherapy. Such articles indicate a lively interest in modifying traditional procedures to meet specific therapeutic problems.

This volume also serves as an index of the state of psychoanalytic theory. In the past there usually were venture-some spirits who delighted in seeking out the limitations of existing theory in order to clarify or extend it. The former task—clarification—is by far the more important, since the inquisitiveness which pays off at the clinical level is often accompanied by uncritical theorizing. The present volume contains no major attempt in this direction, although Brenner's historical review of the concept of repression, Groot's evaluation of defenses as being normal or pathological, and certain of Lowenstein's remarks can be considered as ancillary to the task. The latter task—extension—is undertaken by Greenacre in her article on genius. Here she is no longer concerned solely with tracing genius back to the psychosexual factors which constitute the primordial ooze of all psychic life; rather she is interested in what additional factors must be included to account for such uncommon results. In spite of the merit of her program, she often is discursive or given to substituting colorful phrases for theoretical concepts. Thus this volume, in contrast with certain previous ones, lacks the ex-

citement generated by signs of significant theoretical advances.

For the experimentalist there is a brief report of Lustman's excellent study of infant reactivity and a detailed account by Kris of the difficulties in making accurate predictions in the Yale longitudinal study. When these authors talk of their research rather than their theory, they sound very much like anyone else doing research. Although this seems too obvious to warrant elaboration, it has certain interesting implications.

When Freud launched psychoanalysis as a method of scientific investigation, he was forced to establish some very special rules of procedure. The most revolutionary one was that the investigator had to be psychoanalyzed before he could effectively conduct his investigation and objectively report his findings. If many of these rules were vague and relied heavily on subjective factors, it should be remembered that Freud was daring to investigate just those aspects of behavior which are most complex and most resistant to public scrutiny. Recently, however, this highly specialized approach is being supplemented by the type of controlled observation and experimentation long familiar to psychologists.

THAT this is a conscious and well-reasoned choice is shown by Hartmann and Kris' lengthy articles in Volumes I and V, as well as by less extensive discussions of the research program throughout the series. The Yale longitudinal study, Lustman's experiments, and observational reports in other volumes show how fruitful such a program can be. One important implication of this new venture has not, however, been fully realized. While psychoanalytic training and conceivably even the experience of a personal psychoanalysis will be indispensable in the inspiration and explanation of a study, the actual behavior being observed is now in the public domain and the skill with which it is studied depends on how well the problems of design, measurement, and analysis of data are met. Here psychoanalytic training, instead of being crucial, is irrelevant.

Hartmann and Kris regard this decision to examine behavior directly, as well as reconstructing it from psychoanalytic material, as a logical outgrowth of their interest in ego processes (see Robert W. White's review of Vol. XI, *CP*, Apr. 1958, 3, 81-84). For the experimental clinician, this means that he shares not only a common methodology but also a new area of interest with the analysts: what psychologists deal with under the headings of development of higher mental processes, curiosity, and sensory needs, is directly relevant to what the analysts call ego processes.

Hartmann and Kris clearly indicate that they envision a rapprochement rather than an identity of theoretical and research interests. Although it is possible to take issue with certain of their characterizations of 'academic' psychological research, their stand is a sensible one. The research program envisioned in these volumes is multivariant, idiographic, and process-oriented—exactly those approaches which have presented the most vexing methodological problems to some experimental clinicians and have proved the despair of many others. Or, to use a specific example, it is better that the Yale longitudinal study with its emphasis on a detailed examination of the intricacies of a few cases complement rather than replicate the normative and correlational data from Berkeley. Thus it is important to discriminate genuinely shared interests from genuine individual differences, and to realize the prematurity of trying to reduce one field to the other. A Skinnerian interpretation of dream work, at this point, would be about as fruitful as a psychoanalytic interpretation of Ebbinghaus.

Psychologists friendly to psychoanalysis will probably wish to read this book. There is, however, a more stringent test of merit: would it be the volume of choice to urge upon the enemies of psychoanalysis? Probably not. Volume I, for example, has more scope, Volume V, more intellectual ferment. Even these contain much material reassuring to someone who regards analytic theory as muddled and over-ideational. Reviewing the entire series, however, it seems unfortunate that any clinical psychologist should miss out on the sensitive and

sensible descriptions of behavior, the observational studies, and the reports of that special datum obtained from psychoanalytic therapy. In this age of

anthologies, perhaps such articles could be culled and reprinted as *A Treasury of Psychoanalytic Readings for People Who Dislike Psychoanalysis*.

The Englishes' English

Horace B. English and Ava Champney English

A Comprehensive Dictionary of Psychological and Psychoanalytical Terms. New York: Longmans, Green, 1958. Pp. xiv + 594. \$10.75 (trade); \$8.00 (text).

Review by JOHN F. DASHIELL

Dr. Dashiell, who for twenty-three years has been Kenan Professor of Psychology at the University of North Carolina, has now won his Emeritus and taken it to the new campus of Wake Forest College at Winston-Salem, North Carolina, where as Visiting Professor, appointed on the John Hay Whitney Foundation, he is making his wisdom available in the organization of Wake Forest's new Department of Psychology. Dashiell, president of the American Psychological Association in 1938, is known for his textbooks (1928, 1937, 1949) and the broad range of his research. In these pages he reviewed Pressey and Kuhlen's Psychological Development through the Life Span (Harper, 1957; CP, Oct. 1957, 2, 265f.).

THE issuance of a new dictionary in psychology (and psychoanalysis) is timely. The rash of glossaries nowadays, attached to the elementary textbooks coming off the presses, would seem to be symptomatic of a need well recognized. A quarter-century has passed since the appearance of the two well-known American psychological dictionaries, the Warren and the English; and though it cannot be said that the number of psychological terms at work has increased logarithmically to parallel the growth in the number of psychologists at work, an arithmetical increment of vocabulary is more and more taxing to him who reads the many increasing journals.

More than ever now as empirical researches lead to new findings, two tend-

encies are likely to appear. One is to expand the investigative efforts not only forward but sidewise—which is to say, not only toward new empirical results but also to restatements of old ones, dressing up these latter in fresher nomenclature, such as *operant* or *subception*, or assigning to older terms from the king's English some such unexpected meanings, as *information* or *bits*. The second tendency is to invent a new terminology out of the whole cloth (*syn.*: jargon, even gobbledegook). Naturally too, in the work of the depth psychologists, there is much replacement of our everyday terms with others having more impressive overtones and implications of greater profundity. The reader will recall the verses: "I never get mad: I get hostile; I never feel sad: I'm depressed"—and so on. It may be claimed that an enhanced working atmosphere is thereby created, an atmosphere conducive to probing. Today, then, it is new words, new words!—even if some appear in old spellings.

Here then is a first aid. The word *dictionary* applies, of course, to many sizes and shapes and many levels of erudition. This one, the present reviewer feels, is not for the vest pocket nor for parking on the high shelf: it belongs on the psychologist's writing and reading desk. Terse snappy definitions, like those in English's *A Student's Dictionary of Psychological Terms* (1928) and Drever's *Dictionary of Psychology* (1952), are available at finger-tip control; but at the same time more de-

liberate and judicious consideration of shades of meaning and implications is to be found, too, when the terms warrant it. Not simply a glossary of definitions, then, but at times a discussion of subject-matter pointed a bit in the direction of the cyclopedic. Here the resemblance is more to the Warren *Dictionary of Psychology* (1934), but with substantially more critical elaborations.

Let it be said that English, the lexicographer, is no tyro at this dictionary business. Besides writing his *Student's Dictionary* of 1928, he was one of Warren's collaborators. More important in this context are his wide contacts in psychology—as Rhodes Scholar at Oxford, as Fulbright Lecturer at Lahore, as Visiting Professor at Sao Paulo, and, in the United States, along the academic ladder from Yale to Wellesley to Wesleyan to Antioch to Ohio State, where he has now been Professor of Psychology for not quite three decades. Mrs. English has all along shared his interests in child psychology, editorial work, and presently in lexicography.

The range of terms included in this new work is impressive enough. Choosing the Warren and the Drever for comparison (for the earlier English is quite definitely a briefer book) and calculating the wholes from a ten-page sampling of each, it turns out that as to number of pages the ratio of E & E to Warren and also to the Drever is about 2 to 1 in each case, whereas the number of entries is about 1.5 to 1 in favor of E & E as compared with the Warren and 2.5 to 1 as compared with the Drever.

The Warren carries many tables in its appendix. Some are useful—the catalog of human reflexes and the list of anatomical terms referring to the nervous system. Others are matters of curiosity—the catalog of many kinds of dextrality and the list of phobias. These kinds of material are included in the body of E. & E. The Drever does not include them.

An historical differential is apparent. In contrast with the 1934 Warren and even the 1952 Drever, this new work omits or offers less detail on certain topics of somewhat dated character; e.g., the *Nancy school*, *lethargy*, *Brown-Sequard*, *chronoscope*, and *tachisto-*

scope. And it further demonstrates this timeliness by the inclusion of a wide variety of modern and modernistic terms; *phoneme*, *stochastic*, *forced choice*, *cybernetics*, *J-curve*, *reinforcement schedule*, *extrajective*, *extrapunitive*, *extrasensory*, *extratensive*, and other *extras*.

This compendium is, be it noted, a dictionary of psychological and of psychoanalytic terms. What about the inclusiveness of the latter? One can possibly think of a few terms employed somewhere or other in psychoanalysts' papers which are not listed in the E & E, such as *neutralization*, *organ jargon*, *psychic continuity*, *signal anxiety*, as well as names of special theories of this or that analyst, as Rank's "denial" theory or Clark's "fantasy" method or Deutsch's "as if" personality. But such as these are in rare use. They are all absent, too, from both the Warren and the Drever.

Two secondary matters strike this reviewer as matters of considerable convenience. One is the provision of diacritical marks for words of doubtful pronunciation. The other is the generous number of definitions of abbreviations that we find bespangling our technical articles with increasing frequency—

CAT, DOT, LDG, DQ, SQ3R, SSCQT, and the like.

The batting average for hits is not a perfect 1.000. *Recipathy* seems loosely defined; the reviewer doubts that eidetic imagery is "perhaps universal" in childhood before being lost; Jung's collective unconscious can be more naturalistically defined than as "unconsciousness which [itself] is inherited." But this seems like caviling over a digit in the 'teenth decimal place.

What is impressive is the high degree to which discussions, elaborations, and distinctions have been pressed. And the reviewer testifies to many pleasant moments of following the editors' meticulous working out of the meanings of *anxiety*, *personality*, *group dynamics*, *partile*, *intention movement*, *field theory*, and dozens of others. Good reading!

A feature that helps to save these conscientious distinctions and elaborations from becoming stodgy is the occasional free-wheeling comment. Examples: *lalophobia* is "surprisingly enough a not uncommon symptom"; behavior dynamics "seldom makes a clear reference to facts"; G. W. Allport lists 50 meanings of personality "and no doubt he missed a few"; the coining of a new



HORACE B. ENGLISH and AVA CHAMPNEY ENGLISH

psychological term by attaching an entirely new and far-fetched meaning to an old word makes it for a reader "no less than infuriating to discover, sen-

tences later, that the author was talking about something quite different." To which last let the reviewer add his fervent "amen!"

Sociology's Quiddity Unrevealed

Joseph B. Gittler (Ed.)

Review of Sociology: Analysis of a Decade. New York: John Wiley & Sons, 1957. Pp. ix + 588. \$10.50.

Reviewed by THEODORE M. MILLS

Dr. Mills is Assistant Professor of Sociology and General Education at Harvard University. He is primarily interested in small groups, the social and cultural processes that operate in them and how personality affects the group. He teaches a course in deviance and social control, and also a graduate course in modern sociology in which the book under review has been used.

To sit by the road a moment, to ask where one has gone and where one is heading is a healthy thing to do. Sociology, a relatively young, energetic, and often frenetic traveler, needs these moments. Subfields want perspective, and so too does sociology as one of the behavioral sciences. *Review of Sociology* meets the need of a number of its selected nineteen specialties in fine fashion, in others hardly at all, and, contrary to its subtitle, it presents no analysis of sociology as a whole.

To meet any part of either need is more difficult than it would seem at first, for, as Zetterberg points out in his introduction to another recent, less comprehensive though more keenly selective report (Hans L. Zetterberg, editor, *Sociology in the United States of America*, UNESCO, 1956), a near revolution has occurred during the past decade: more sociologists—as much as three times more—are working on more projects under more auspices on more varied problems in more organizations with more financial assistance than ever before in sociology's history. Major trends of such a rapidly growing, widely dispersed and enthusiastic army are not

easy to disentangle. Even before the revolution, Gurvitch and Moore, as editors of the 1945 recapitulation, *Twentieth Century Sociology*, resolved their editorial problem by collecting a series of essays from experts. Zetterberg, two years ago, and now Gittler follow the same course.

The reviews of some of the contributing specialists are exceedingly valuable papers. They sum up the past, abstract from it those central issues that give disparate works meaning and coherence, and, since these issues are likely to be with us for a while, convey a sense of excitement and a feeling of direction for the future. I am thinking particularly of the chapters by Stouffer on quantitative methods, by Whyte and Miller on industrial sociology, by Warner on social stratification and, to a lesser extent because the issues are not as clearly drawn, the lucid account of work on the urban community by Gist. One learns in these chapters, for example, not just that a new technique has been devised, but why anyone should work on it, what problem it resolves, what economies it offers and what promise it holds. Because these authors seem interested in removing the blocks standing in the way of making a science and because they undertake selection and evaluation in these terms, they instruct as well as report history.

THE theme of other chapters, if I may go to the other extreme, is not so helpful. It seems to be stated by Gittler and his co-author, Manheim, in their

essay on theory: "In selecting publications . . . their intrinsic value was only one of several possible considerations. That an article or book is included . . . is not in itself an indication that the authors considered it of greater value or more enduring significance than another which was left unmentioned. The major objectives have been clarification and elucidation rather than prognostication and prediction."

Fine for reporting the decade's news, but what about the editorial pages? In the cases of theory, of marriage and the family, of social institutions, and, in an unusual manner, in the case of collective behavior, there is substituted for editorial opinion and evaluation a re-classification, re-categorization, re-arrangement of recent works under rubrics, some outmoded, some new. Titles and headings are not used to organize ideas and issues, so that, while nothing seems to be left out—the bibliographies in most chapters are voluminous—it is often not clear what to make of items that are in. For example, in the chapter on theory, attention is called to Levy's concern with functional prerequisites, to Merton's middle-range, to Parsons' analytical variables, and to Gurvitch's levels, but nothing is said about them. Like fillers on the editorial page, they are just there! Suppose Levy succeeds. Would it make a difference? What strategy attends Merton's middle-range? What are its advantages, its limitations? What difference would it make if Parsons succeeds in analyzing personality, social and cultural processes by the same simple scheme? Can the truly significant note on Gurvitch be that "he is sometimes classed as a phenomenological sociologist"? Figure and ground do not in these chapters become distinct.

Nor do they for the field of sociology as a whole. Here, I think, *Review of Sociology* disappoints us most. It attempts no overview. It lacks a prologue; it has no epilogue. How have the subfields become related or separated? How has sociology's responsibility, both from within and from outside, changed? How have the sociologist's chief working tools—his basic assumptions, values, beliefs and ideas—served him? Are they being reshaped? Had the

editor, or a board of editors, considered the more over-arching matters of the field, I should imagine that the impact of works, which may be of limited help in certain specialties but of importance to the science as a whole, would have received more than passing attention. As two among a number of others, I think of Murdock's *Social Structure* and Parsons and Shils' (editors) *Toward a General Theory of Action*.

Though in these respects the book falls short of an analysis of recent sociology, it is likely that other attempts will meet the same fate, at least until we have a more advanced specialty, the sociology of sociology, and that will indeed take more than a moment's stop by the roadside.

All about Marriage

Harold T. Christensen

Marriage Analysis: Foundations for Successful Family Life. (2nd ed.) New York: Ronald Press, 1958. Pp. xii + 645. \$5.50.

Reviewed by ERMA C. FISCHER

who is just now engaged in graduate work in the Home and Family Life Department of Teachers College, Columbia University. She has a considerable history of researching, writing, and editing for various magazines, books, and projects—recently for the American Social Hygiene Association's program of education in family life, and for Teachers College's Citizenship Education Project.

It is difficult to imagine that there exists a more comprehensive textbook in the field of family-life education than this. It covers every conceivable topic directly related to marriage, and some which are not.

Dr. Christensen is head of the Department of Sociology at Purdue University as well as Professor in the Department of Family Life in the School of Home Economics—so he has a double-barreled approach. Although his

announced main concern is functional marriage-education rather than academic, his book is actually a mixture of both.

He devotes eighteen chapters to personality development and interpersonal relationships. He also includes four chapters that deal with the family as a social institution, and throughout the text he discusses social forces wherever they are relevant to the success or failure of marriage and family living.

The enormous scope of the book is both its strength and its weakness. Doubtless it is very useful to have so much stimulating and informative material available in one volume. On the other hand, some of the material included does not seem to the reviewer particularly appropriate to this type of book. Some sections are too statistical, too technical, and too professional. A few of them present folksy material below the accepted college level. Certain topics might have been better referred to without detailed discussion.

It is my feeling that most of the material about heredity, eugenics, prenatal influences, and pregnancy (including such complicated matters as genetics, sex determination, conception, sterilization, the Rh factor, pregnancy tests, natural childbirth, miscarriages) would have been better left to other compendia. In fact I would omit also discussion of such questions as insurance, house-buying vs. renting, and many of the statistics about population changes, child-spacing, etc. Interested students can always be referred to the proper sources for these facts.

Eliminating some of these technical details would have made room for more adequate discussions of such subjects as the effects of poverty, poor housing, child labor, and middle-class mores on family living—important subjects which deserve more space, and on which Dr. Christensen surely could have written with more authority. He might also have been able to discuss a little more thoroughly some of the research studies to which he refers only briefly.

On the other hand, it is only fair to observe that some of the difficulties encountered by the author are not of his own making but are indigenous to the field in which he works. Dr. Christensen

has done elaborate and painstaking research for his book, and in the main he has reported on it with clarity and objectivity. It is not his fault that many of the studies seem to document the obvious, do not show cause-and-effect relationships, and are based on inadequate samples. It is, moreover, to his great credit that he recognizes these weaknesses and points them out. Nevertheless, a little more discussion of some of the studies would have made them more meaningful. Nor would the elimination of some have been bad, for the book is too long, and its many footnotes make for difficult reading.

These weaknesses, however, do not outweigh the strengths. The book abounds with good, solid, down-to-earth suggestions. It contains a lot of sound psychology. Dr. Christensen's main field is sociology, and he points out in some detail the important effects that society has upon the family. Still he makes it clear throughout that he considers "psychological variables" more important than situational factors. Over and over, either explicitly or implicitly, he insists that, given emotional maturity, individuals can handle almost any situation with a reasonable degree of success and satisfaction. Maturity is, of course, hard to come by, and Dr. Christensen lays down no exact blueprint to plot the way. Yet he takes a strong stand for the developmental-permissive approach to child rearing and teaching and for democratic procedures within families. He presents good summaries of the psychological theories behind these principles and good arguments for their use.

The sections on the changing roles of men and women, sex education, mental health in marriage, parent-child relations, postparenthood and the aged, and on-being-without-a-mate are all, in my opinion, thoughtful, authoritative and stimulating.

If *Marriage Analysis* is used as a day-to-day textbook (a purpose for which it was apparently designed), the *Problems and Projects* sections are essential. These sections often raise controversial issues and unsolved problems not really considered in the text. The book should also serve as a most useful source for all teachers, students, and group workers in family life and related fields.



ADOLPH MANOIL
Film Editor

Film

MOTILITY IN INFANTS

Expressive Movements (Affecto-Motor Patterns) in Infancy.

Produced by Dr. Bela Mittelman, in collaboration with Laura Malkenson and Dr. Ruth L. Munro. Available through New York University Film Bureau. \$125.00.

Reviewed by BRUNO BETTELHEIM
The University of Chicago

MORE and more we see the attention of developmental or child psychoanalysis spreading from the older concentration on erogenous zones—oral, anal, and phallic—to include another order of urges or instincts. That motility is one of the most important expressions of the libido is now widely recognized. Just as feeding patterns, sexual inhibitions, and education to cleanliness influence personality formation and deviation, so does the patterning of motor activities, their encouragement or inhibition. A psychoanalyst who reported on his study of this important problem a few years ago (B. Mittelmann, *Motility in Infants, Children, and Adults*, Internat. Univ. Press, 1954), now illustrates it further through a splendid film.

This movie traces the development of expressive movements from birth through the first year and a half of life. During the first three months we see that the most important motor pattern of the infant is that of discomfort, culminating in crying. In it, the whole body musculature participates with characteristic leg and arm movements. A crucial change occurs around three months of age when limited and consistent individual differences appear in the pattern. Beginning at this time,

smiling, too, is accompanied by characteristic motor patterns, involving the whole body musculature, with consistent individual variations. There are partial characteristic differences between the crying and the smiling patterns. The next significant developmental period starts at about eight months when hand-slashing becomes characteristic, particularly in joy reactions. Also, with increased bodily control and development of locomotion, the child now responds to pleasant and distressing stimuli by moving towards and away, respectively. Anxiety now produces immobilization, or flight to the mother, along with crying.

Nothing is shown in this film that any parent cannot observe during his own children's infancy; yet how many observe it, even without systematic observation and analysis? Even those most intimately familiar with babies will profit from viewing quietly and at leisure these fleeting moments of behavior, all too readily taken for granted when they happen, and passed over.

Viewing this film suggests vividly that, if we want to understand the emotions of the infant, we must study (1) the importance of expressive movements in infancy, (2) the relationship of expressive movements to other motor manifestations, (3) the relationship of expressive movements to emerging interpersonal relations, particularly to parents and siblings, and (4) how and when individual differentiation sets in.

As regards expressive movements themselves, several factors are illustrated in this film. We see, for example, that while a general pattern is clearly discernible and applies to all or most infants, there are significant individual variations within the general pattern. Again, there are developmental sequences which have general character-

istics and also permit individual variations. Some of the infants we watch on the screen show an early affect specificity; that is to say, while one general motor pattern accompanies the smile, a different pattern accompanies a cry. Other infants, at least as far as we can tell from the film, can hardly be differentiated in this respect. Naturally, there are gradations between the two extremes.

As we watch the film, we realize the relationship between motor manifestations and expressive movements, and how both merge into certain types of manipulative movements such as shaking, hammering, waving bye-bye, and so forth. Further, we note how they merge into aggressive movements, such as striking out. In addition, they are utilized and elaborated into such rhythmic movements as a 'dancing-like' jumping up and down.

The film shows convincingly that expressive movements are one of the important motor factors shaping the infant's relationship with his environment, since his movements are a form of communication with the mother. They stimulate the mother and permit a reciprocal exchange which ultimately develops into social games. Thus, they are an important avenue for the socialization of the infant.

THE normal infants, whose behavior we watch in this movie, were filmed in their own homes, often shown in interaction with their parents and in one case with an older sibling. The great value of the film is its clarity in demonstrating the close relation between the development of adaptive behavior and interpersonal relations, and in showing how adaptive behavior grows out of affectomotor behavior which, in turn, grew out of random movements. It shows how, as a child develops, his motor behavior and affective reactions become ever more specific, how random slashing movements of arms and hands grow into the goal-directed manipulation of objects.

One delightful sequence shows, for example, the development of both personal relations and of infant autonomy around a feeding situation. It is fasci-

nating to watch the back-and-forth in the infant's desire to feed himself. It is still much more comfortable to be fed by the mother, yet the delight the mother shows at the baby's expression of his desire to feed himself leads to a situation which is more pleasurable to both; at one and the same time it safeguards the child's autonomy and decision-making, while also providing him with the pleasure of being fed by the mother. This resolution is achieved by the child definitely pointing to the morsel he wants, and the mother then feeding it to him.

Here in a short sequence is beautifully depicted how good relations between mother and infant permit both of them to find an ideal solution that implies respect for the child's autonomy while still assuring him of dependent care.

One thing was distressing to this reviewer in a movie so faithful to the infant's normal development in his natural habitat, the home: scenes in which an adult nods his head mechanically, to demonstrate the child's response to it. While we learn much about normal development from the rest of the film, little can be said for this attempt to introduce an experimental psychology which tries to be objective and subjects itself to the controlled situation. The sequence achieves nothing beyond teaching us about the experiment; it tells us nothing about the human beings whose interactions we are trying to understand. Actually this head-nodding scene does not teach us anything that is not shown much more clearly and convincingly in other scenes, where the interaction between infant and mother was not governed by abstract notions about 'pure' science but followed vagaries of the normal interactions of living. The scene does illustrate, it is true, that in human interaction, when one of two persons behaves artificially, little more can be studied than artificiality. This minor criticism should not, however, detract from the various important lessons the film has to teach, as, for example, how beneficial it is for the child when affective-motor movements and expressions in adult and child are reciprocal and purposeful. Another striking demonstration was the showing of

how motor responses slowly cease with the experience of satisfaction.

SEVERAL scenes in the film suggest interesting points for speculation or further investigation. Watching the baby being diapered, one is impressed by the contrast between the great freedom these infants were given in developing their motor reactions in some situations, as compared with the definite restraint by an adult, contrary to the infant's desire, when being cleaned and diapered. In another scene we see how the infant, penned in his high chair, is subject to and experiences inhibition of well-coordinated total motor response; how the high chair restricts this to the movement of arms and hands. Studying such situations in detail, if you view the film repeatedly, leads to far-reaching questions about the validity of prevailing infant care, which so strangely combines encouragement of free motor responses in almost all areas but the feeding and diapering situations. These very enlightened parents, most permissive in regard to motility, suddenly grow restrictive of motility in situations involving intake and elimination.

The interference with free movement around these two situations may have important consequences, since it is so radically different from the freedom to move that reigns over all other life activities; as a matter of fact, freedom of movement in other areas is not only permitted, but actively encouraged. The infant whose crawling was just rewarded by the parent's delight is suddenly grabbed and held down firmly while being changed. No such radical difference in regard to motility around intake and elimination characterizes the life of the swaddled infant, or of one who is carried in a cradle board. In the lives of these two, free motor discharge is not suddenly and solely interfered with when eating and being cleaned; hence in their experience these two life situations do not acquire a unique and restrictive connotation as far as motility is concerned. It would be interesting to speculate on the consequences for personality formation of these differences.

In general, the film shows clearly the

degree to which, in the first year of life, the infant's spontaneous actions look more meaningful than they often are, while they are quite deficient in purposefulness when compared with *adaptive and expressive movements* that accompany them. By wisely restricting themselves to one small area of child development, the earliest infant age, the producers of this film have achieved much more than if they had tried to cover a wider area. This film is instructive not merely for students of psychology; all parents of infants could learn much from it. And the advanced scientist may give pause to think how it is that affective-motor responses influence (and lead to) human relations and attitudes to the environment.

Films and Other Materials

RESEARCH

Instructional Television Research. Report Number Two: An Investigation of Closed-Circuit Television for Teaching University Courses

C. R. Carpenter and L. P. Greenhill, in collaboration with W. F. Christoffers, F. R. Hartman, J. D. Hingleby, L. F. Kepler, J. A. Murmin, H. C. Peters, W. S. Ray, H. D. Sherk and L. E. Stover. University Park Pennsylvania: The Pennsylvania State University, 1958. Pp. 110.

Television Effects. A Summary of the Literature and Proposed General Theory

Lionel C. Barrow, Jr. and Bruce H. Westley. Madison, Wisconsin: University of Wisconsin Television Laboratory, 1958. Pp. 184.

OLD-AGE PROBLEMS

Problems of the Mind in Later Life: a Film Report

Produced by Dynamic Films. 16-mm motion picture film, black and white, sound, 45 min., 1956. Available, free of charge, from The Wm. S. Merrill Company, Department of Professional Services, Cincinnati 15, Ohio.

Various problems of mental health in later life are presented. The film is based on the Second Annual Symposium on Constructive Medicine in Aging.

ON THE OTHER HAND



WHEN IS CENSORSHIP GOOD?

Fearing's review of Walter Kerr's *Criticism and Censorship* (CP, Aug. 1958, 3, 261f.) does not do justice to the basic issues involved in censorship. Fearing presents a simple authoritarian vs. anti-authoritarian dichotomy as the fundamental issue when he states that "the assumption [is] implicit in any theory of censorship that someone or some body of persons possess the kind of knowledge or the kind of insight which could justify the proscription of what the rest of the community may see and hear."

The central issue of censorship, as I see it, is much more clearly a question of values. It is not primarily a question of whether someone or anyone possesses "special insight." It is rather a question of whether what insight we possess may properly and fruitfully be used for censorship.

In research and experimentation, we prefer to be cautious and give the null hypothesis a 95 or 99 to 1 chance, so as to avoid the error of affirming the alternative hypothesis when it is wrong. However, in any research which will lead to immediate decision, when we must act or not act on the basis of something less than adequate evidence, we do not typically give the null hypothesis such a large chance. In action research of this sort, we must reasonably weigh the consequences of both kinds of errors (the mistaken rejection of the null hypothesis or of its alternative).

Mr. Fearing is obviously very much concerned with the error of mistakenly rejecting good and valuable art, in the name of morality or any other standard. The possible danger (presumably to man's welfare) of censoring the positively good is much more real to him than the danger of possible corruption, which he admits may exist in certain kinds of literature and art.

If, however, we view corruption through art forms as a greater danger than the occasional abuse into which censorship falls, we will be inclined to favor censorship at least in principle. We will then be more willing to take our chances on making censorial error by excluding the good and valuable, in the conviction that to exclude a bad influence from man's life is worth

the occasional exclusion of the good and valuable.

ANTHONY BARTON
University of Chicago

DANGEROUS ART

In respect of Franklin Fearing's review of Walter Kerr's *Criticism and Censorship* (CP, Aug. 1958, 3, 261f.), let me say that any consideration of censorship in the arts should begin with the admission that among the Western nations the protagonists of the freedom of thought have adhered to some censorship of the arts while peoples less sensitive to political freedom have showed laxity in this field. This then proves that there is no point to point relationship between sensitivity and laissez faire in one field and strictness in the other. One may wonder whether appeals to the emotions in the arts and in politics might not be basically different.

It is good to think of such possibilities before starting with the controversy itself. If censorship of the arts is to be discussed with any prospect of fruitfulness, the two thousand years from the trial of Phryne of Athens to the trial of Mme. Bovary in 1857 and on to our own embarrassments should teach us a wholesome distrust of 'the self evident.' Can the censorially minded both 'eat their cake and have it too,'? asks the reviewer. It has often occurred to me that, when the hostess asked me whether I had had my cake, I could truthfully answer, Yes and I ate it too.

The reviewer seems to doubt that someone might possess the kind of knowledge which could justify the proscription of what the rest of the community may see and hear. It is just this point where the reviewer and probably the author fall short.

There are two theories available, if one wants to attack the problem basically. One is the training theory, which tells us that the onlooker, if he keeps being exposed to the 'unacceptable,' trains himself in accepting it and gradually even in doing what would earlier have horrified him. The other theory, contrariwise, maintains that the onlookers will gradually abreact their innate tendencies toward the 'subhuman.' The training theory (*Einübungstheorie*)

applied by Karl Groos to the playful activities of human children and young animals is the guiding star of the Comstockians, the zealots. The abreaction theory, which I have also called the lightning-rod theory, has as its followers the liberals.

It is obvious that before either or both of these theories can be applied, we should know whether there "exists, at all, a criterion of the immoral. A criterion can exist only with reference to a given society and those values in that society which are most generally accepted and—which is not the same—least generally objected to. Such a criterion exists in Western society. We do not object to sex any longer, but we object to appeals to immature sexuality in either children or else in the psychosexually immature. Clinically the criterion is based on Freud's Three Papers Concerning the Theory of Sex. A list of factors was worked out, together with rules for their application.

Both the reviewer and the author of the book *Criticism and Censorship* (which I have not read) seem to ignore the fact that "the kind of insight and knowledge" necessary to exert censorship exists.

W. G. ELLIASBERG
New York, N. Y.

SHOEMAKER QUILTS HIS LAST

A couple of days after reading Dr. Burdick's review (CP, Sept. 1958, 3, 247) of Ortega y Gasset's recent work *Man and People*, I happened upon another review of the same work in the *Journal of Philosophy* (Aug. 14, 1958, 55, 739). As the contrast of the two was enlightening to me, I thought it would prove of interest to the readers of CP also.

Although a single quotation will oversimplify the case still let me confine myself to a passage from each review which, I think, is representative of the contrast alluded to. Geoffrey Clive of Clark University states: "This book is philosophical sociology, a refreshing change from the pretentious jargon of social science." The CP reviewer says: "It is hard to know what to conclude from this book, for it is difficult to judge Ortega y Gasset's intentions." The operative word in the first quote is *philosophical*; the pivotal phrase in the second is *it is difficult to judge . . . intentions*.

The difference is curious; it symbolizes for me a certain obtuseness which we psychologists show not indeed to method as such but rather to methodological difference. My impression is that Dr. Burdick was insufficiently alert to the difference between philosophical and scientific method

in his reading and review. Because of this asymmetry he had trouble understanding Ortega y Gasset's intentions. And yet, even though he does not understand, he bemoans the philosopher's insistence on mind-body, free will, and anti-empiricism. I suspect that the reviewer did not see these items as philosophical problems which a scientific interaction system cannot, is not intended to, handle but with which a philosophy (even one bearing the interaction label) can and must deal.

Certainly the difficulty inherent in the CP review struck me more forcibly partly because of Clive's counterpart when I read it, but also because I had lately been disturbed by this problem in several other psychological writings. It would be unfortunate if, while becoming more sophisticated in method, we psychologists should become increasingly naive about the methodological difference between our science and any philosophical system.

WALTER L. FARRELL
West Baden College, Indiana

BULLY WORD

Our field has an abundance of new terms expressing old ideas. Indeed, we who teach elementary psychology often feel our greatest effort is spent in compounding and perpetuating this tradition.

Once in a great while, however, a term is introduced into the literature which fulfills a definite need. Such a term was the beautifully descriptive one used in the introduction to Arthur Bachrach's review of Albert Ellis' *How to Live with a Neurotic* (CP, Aug. 1958, 3, 226f.). May *tauro-machian* reappear often with reference to psychological writing! May it be incorporated into the first revision of the English's *Dictionary of Psychology*! This single term, if accepted as part of the psychologist's armamentarium, will save paragraphs of circumlocution in the pages of our journals.

C. DOUGLAS CREELMAN
University of Michigan

WHAT GOT LEFT OUT

The primary purpose of a review is to give the reader an idea of what the book reviewed is about; afterwards, the reviewer may advance his criticisms. I think, therefore, that I am justified in supplementing the review of my book, *Human Motivation: Probability and Meaning* (CP, Aug. 1958, 3, 225f.), for no one who reads the review could gather from it that:

(1) More than half of the book is devoted to the development of a statistical

technique for dealing with the multivariate analysis of attributes;

(2) The conception of joint, as opposed to linear, correlation is presented as the key to the analysis of motivational effects;

(3) This conception forms the link between Gestalt psychology and statistical psychology; and

(4) There is a section on the relationship between attitudes and motivations and on attitude scales.

The reviewer in his last paragraph asks: "The author makes no mention of sampling statistics; does he imply it is sufficient to study any group to extract meaning from their proportions or must we wait for samples so vast that sampling error is no longer a consideration?" My answer is given on pages 18 and 96 in the book.

FRED T. SCHREIER
A. J. Wood and Company, Philadelphia

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BOSSARD, J. H. S., & ELEANOR STOKER BOLL. *Why marriages go wrong: hazards to marriage and how to overcome them*. New York: Ronald Press, 1958. Pp. ix + 224. \$3.50.

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